

Flight, October 29, 1910.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

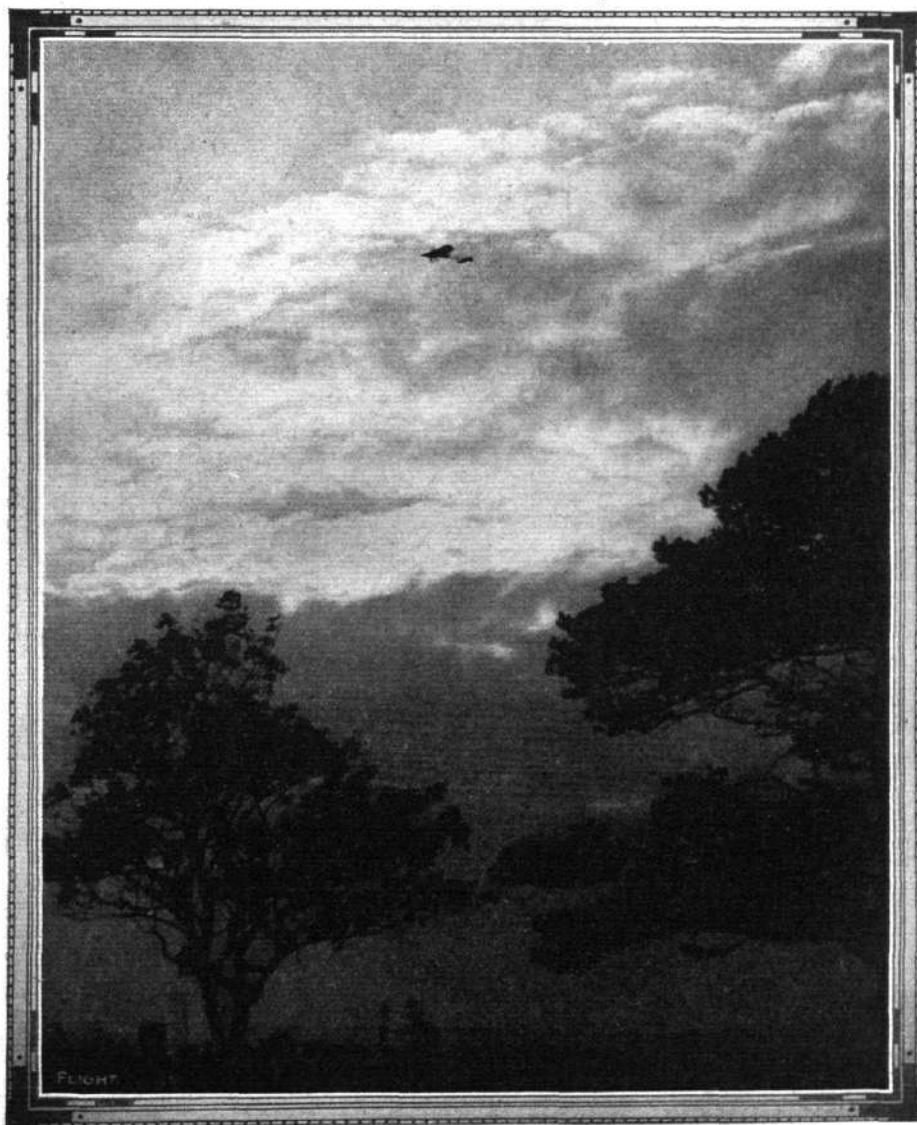
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FLYING AT DUSK.—Mr. Cecil Grace, on his Blériot recently making one of his high flights during the close of the day.

DIRIGIBLE FAILURES AND SUCCESSES.

DIRIGIBLE balloons have been in the air, both literally and figuratively, in the course of the past few weeks, and from the successes and failures they have achieved there are quite a number of valuable lessons to be deduced. At last this country has been given an opportunity of seeing a first-class dirigible—one which is capable of better things than the elementary pottering which has hitherto been the most salient characteristic of British aerial navigation by dirigible. The "Clement-Bayard" was certainly long overdue; in fact there is more than a touch of comedy about the whole thing. First of all there was the announcement that she was positively coming within a matter of days—all that was required was suitable housing accommodation; and forthwith up went the huge erection on Wormwood Scrubbs, men working feverishly day and night until it was finished. Then, month after month, the public heard at intervals that "The Clement airship, which was to inhabit the *Daily Mail* garage at Wormwood Scrubbs" was to be ready for trial flights, and, luck and the elements being propitious, she would really and truly make the crossing this time. Time after time things happened—in fact, everything happened but the crossing—until everyone had begun to despair of ever seeing the airship which had assumed so very nebulous an appearance. Then, one fine Sunday morning when good people were wending their way home from church and the wicked were away playing golf or week-ending at Brighton, down dropped the Clement at the doors of the garage. It was well done—done in a business-like way and done quite dramatically. It happened to be a fine morning at Compiègne. "Clement-Bayard II" was brought out for trial; everything seemed to be going nicely and everything happened to be ready, so "We will go to London," said M. Clement; and to London they came.

We cannot help regarding it as just a little bit unfortunate that this historic flight—for it is historic in that it marks the first crossing of the Channel by a dirigible, if we except poor "La Patrie" which came across "on its own" so to say—has taken place at a time when the heavier-than-air machine has no recent outstanding performance in this country to point to that will help the public mind to preserve a proper sense of proportion. The man in the street is almost absolutely a creature of the moment, and there is a danger that, in contrasting the beautifully easy manner in which the Paris-London journey was made by the "Clement-Bayard" with Moisant's twenty-one day flight between the two capitals, there may be a disposition in the public mind to consider the dirigible proved and the aeroplane damned. We hold no brief for the aeroplane against the dirigible or *vice versa*, but what we do say is that neither cross-Channel journey has proved more than the other. The fact that the "Clement-Bayard" made the journey with the speed and certainty of an express train proves that given everything in its favour the dirigible can make the trip between Paris and London in about seven hours; but we are still without information as to what it can do the journey in against a twenty-mile wind—even if it could ascend at all. Moisant's trip proved that it was possible for an aviator to encounter such bad fortune that between boisterous weather and mechanical trouble it was possible to take three weeks over the trip that the airship accomplished in twice as many hours. In fine, neither is a convincing demonstration of the true possibilities of either form of craft, and

it would be well to suspend judgment until more is known about these things.

Coming to the unsuccessful attempt of Wellman to cross the Atlantic, here again the real lessons to be deduced are almost purely negative. He failed in what he had set out to do, and he failed for very obvious reasons. But that by itself does not of necessity prove that it is impossible to cross the Atlantic by dirigible. Do not let us be misunderstood in this. We do not say that it is easy or even possible in the light of present day achievement to make the journey—our point simply is that the possibility has been neither proved nor disproved. Wellman made his attempt with an ancient gas-bag that, since his abortive Polar attempts, must almost have become a white elephant on his hands. Utterly unsuited for such a journey, nothing but failure was to have been anticipated from his attempt, and yet, supposing for a moment that he had struck a series of strong westerly winds, such as often prevail at this time of the year, and he had achieved his crossing, still nothing would have been proved but the fact that given everything in its favour the dirigible can travel great distances. So can the spherical balloon. However, it is by no means our intention to belittle anything that has been done—what we want to point out is that there is yet much to be done; and it is unsafe to assume that too much has been demonstrated.

Now, a word as to dirigible prospects in England. It seems to have been more or less definitely settled that the Clement vessel is to be acquired for the use of the Army. Some little objection has been raised in certain quarters anent a supposed decision to do without some of the minor tests which were laid down as necessary before an air-craft could be accepted for Service use. To our mind, the military authorities would be quite right in dispensing with any such relatively unimportant tests. In the first place, the Clement is not a mere experiment. She has proved herself over and over again, and as for her suitability for military use up to the point that is at present feasible, we need only point to her work in the course of the late French manoeuvres. In any case, it is really time that the British Army had a thoroughly good start in the way of practical airships with which to conduct instructional work. The parsimonious footing that has simply resulted in the painful little craft which the military balloonists have been compelled to try to fit into their needs may look well in the Army Estimates, but reduced to a factor of every-day common-sense it is disastrous. By all means let the country secure the Clement and as many more craft of the kind as are needful to train officers and men against the day when they may be wanted badly.

Turning to other ships in prospect, the Lebaudy, which is to be purchased out of the *Morning Post* fund, appears to have done very well in France, and just as we go to press, has arrived at Aldershot. Then there is the modified Zeppelin, under construction at Barrow and approaching readiness for her trials. This latter is of course an Admiralty craft, designed entirely for experimental work in connection with what we may call a potential "blue-water" air fleet. By the time this and the Lebaudy pass into commission, there will at least be the nucleus of an aerial navy that will put Great Britain in a position to start taking her rightful place in military aviation, even if she cannot yet boast the mistress-ship or controlling fleet of the air.

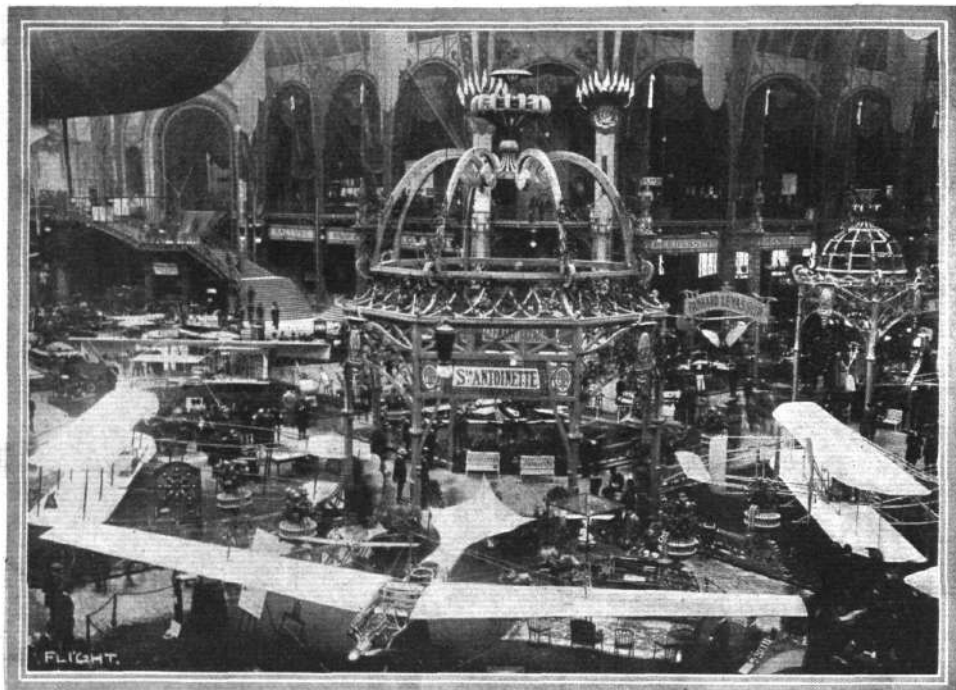
FLIGHT PIONEERS.



MR. D. GRAHAM-GILMOUR.

IMPRESSIONS OF THE PARIS SHOW—(continued).

By OISEAU.



PARIS FLIGHT SALON.—General view of the centre of the Grand Palais. On the right is seen the Wright biplane, on the left the Maurice Farman biplane, just beyond being the Henry Farman machine, whilst in the foreground, in the centre, is the two-seater Antoinette monoplane.

M. SOMMER again shows a biplane which in no way differs from his previous models, but there also appears on his stand a monoplane which has during the past few months made some successful cross-country flights. It follows in appearance the conventional lines of the average monoplane, but differs in one or two matters of detail. The fuselage is of the Blériot type now so commonly employed, and the tail is weight carrying, though with the elevator hinged on to the trailing edge. The angle of inclination of the tail plane can be altered at will by the pilot by means of a wheel fixed by his left hand. This fitting has been copied direct from the Sommer biplane. The control-lever and the chassis also closely resemble those of the biplane. As one might expect, the Gnome motor is fitted.

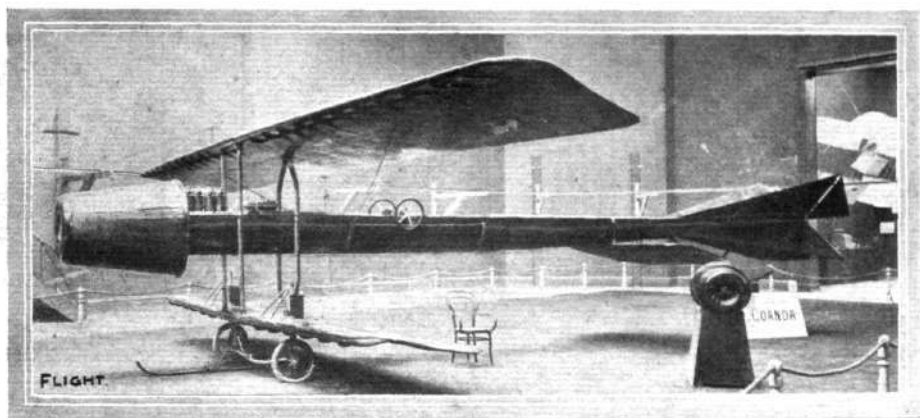
On the next stand is displayed a monoplane which is certainly original in conception, a tandem monoplane built by Clerget and Co. for the special purpose of exploiting a 200-h.p. 8-cyl. V-shaped motor designed by the Clerget Co. Following the usual custom of all those exhibiting two or three-seaters at this Salon, they name it a "military type." An ordinary Blériot type fuselage of 14 metres in length has two sets of wings, the first of 10 metres from tip to tip in the usual forward position, whilst the latter pair, of 7 metres width, are placed 6 metres from the others. Following immediately behind is a tail plane with rudder and elevator. This rear plane seems almost unnecessarily large in view of the great lifting power of the back planes. Between the two series of main planes three seats, placed equidistantly, are arranged. The front one is that of the mecanicien controlling the motor, the observer takes the middle seat, whilst furthest back of all sits the pilot. I am afraid one is not greatly impressed by the prospective ease of management, and great modifications can be expected before any really satisfactory flights can be made.

Messrs. Turcat-Mery and Rougier have designed a biplane of the later type developed by Breguet and Goupy amongst others. The tendency towards reducing the area of the main planes is here clearly demonstrated. The four-branched propeller, also of Turcat-Mery design, is placed in front of the machine, and is driven by a

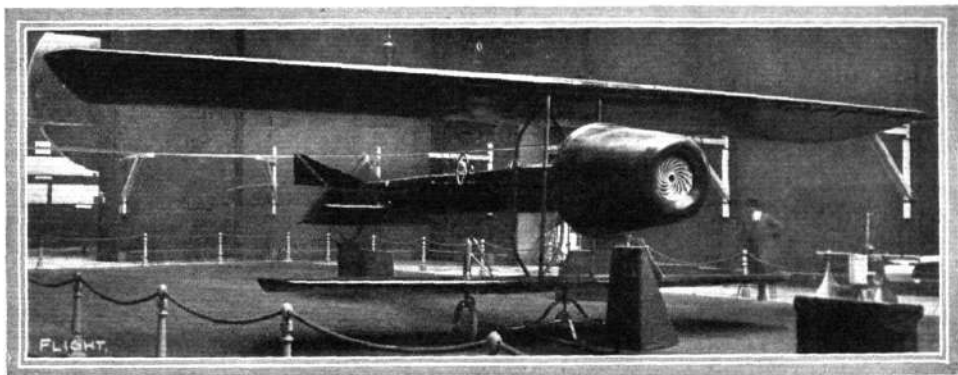
60-80-h.p. E.N.V. motor. The tail plane, with which is combined the elevator, has underneath it two rudders. The control is by a wheel mounted on a pivoted pillar actuating the elevating and wing-flexing wires, and a foot-bar for steering. To the excellent two-wheeled chassis of this machine is fitted a brake which acts on the ground itself, and is worked by a lever at the pilot's right hand. A pathetic interest is attached to the Turcat-Mery, as not only was it designed by a pilot, Rougier, whose accident at Nice has incapacitated him from further flying, but it was to have been flown by the unfortunate Chavez had he lived. There is, however, to all appearances, a successful future before it.

Another aeroplane, though not of recent initial design, is so altered as to make it almost a new type—the R.E.P. M. Esnault-Pelterie, one of the pioneers of aviation, has, until the last few months, stolidly refused to depart from his early individualistic ideas of how to design a flying machine, with the inevitable consequence that success rarely came his way. Profiting by his own failure to fly really well, and by the experience of others, he has at last allowed sufficient of conventional design to enter into his machine that it has now become of the first rank. A chassis has been added, perhaps a little too closely resembling the Antoinette in superficial appearance to entirely please my fancy, and yet greatly in advance of the one-wheel carriage. The tail, too, has the usual elevator and rudder in place of one confusedly arranged that warped in various curious directions. The wings are stayed by wire cables, as on other monoplanes, and lateral stability is maintained by gauchissement and not by the altering of the entire wing angle. One of the new type R.E.P. 5-cyl. 55-h.p. engines is fitted, driving a two-branch wooden propeller in place of the four-bladed metal propeller used until recently. The entire aeroplane is covered in scarlet "Continental" canvas, therefore appealing greatly to the æsthetic taste of those to whom appearance counts before all things.

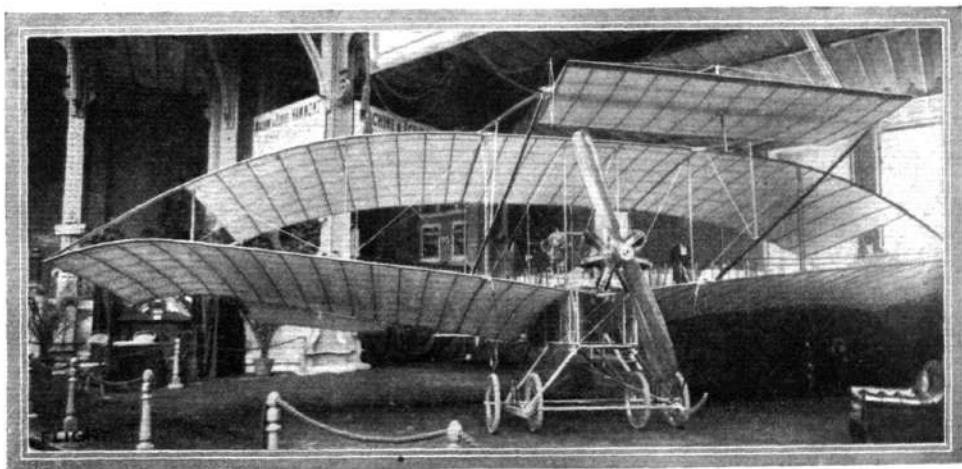
Another promising machine displayed in the Salon, though placed unfortunately in the obscure side aisles under the galleries, is the S.A.F.A. biplane, to which reference was made in these pages some weeks ago. One is always glad to hear of the success of a machine



Side view of the Coanda aeroplane, upon the turbine-propulsion system and without propellers, at the Paris Flight Salon. This machine has been purchased by Mr. Weymann.



View from in front of the Coanda turbine-driven aeroplane at the Paris Flight Salon.

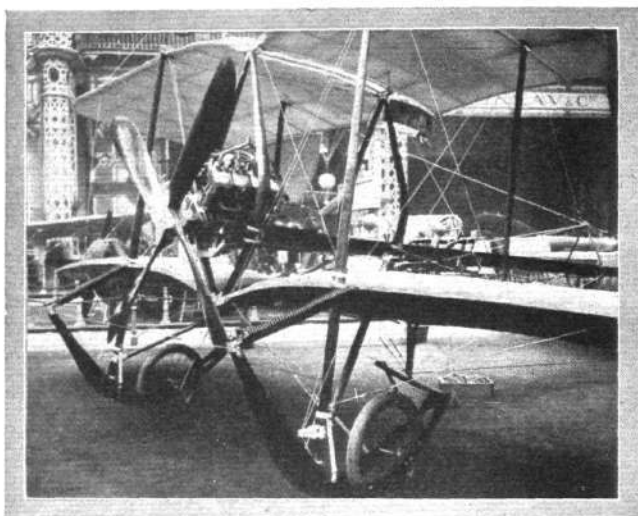


Last week we published a view, from behind, of the Sloan biplane, and above we now give a view, as seen from the front, at the Paris Flight Salon.

which, while in no way freakish, possesses many points of originality. In general features it is a biplane without a front elevator, and with a monoplane weight-lifting tail, having over it two vertical rudders. The engine, in this case an Anzani 5-cyl. of 40-h.p., is placed in front of the main planes, and the pilot's seat immediately behind them. The lower members of the fuselage join the skids and are raised slightly from the ground in front by two small wheels. The control is by a universally-jointed lever for both elevation and gauchissement, and a foot-bar for steering. Ailerons placed midway between the ends of the main planes are retained as lateral stabilisers, in contravention of recent custom. Some idea of the compactness of this machine can be gained when one realises that the entire width is only 8 metres and the same in length. From my description it would seem to be merely of later conventional design, but a reference to the photograph published in *FLIGHT* some weeks ago will show the amount of careful thought expended on the production of this machine. The Compagnie Internationale de Navigation Aérienne, on whose stand the S.A.F.A. appears, also exhibit the Thomann monoplane, of which the fuselage and chassis are made of steel tubing. I understand the ease with which this apparatus can be packed for travelling is worthy of notice.

Quite close to this stand is the Goupy biplane, of the qualities of which the English have had opportunities to judge both at Doncaster and Burton during the past few weeks. The pronounced forward positions of the upper main plane and the upper tail plane create an impression of great speed, which is by no means unjustified by results. M. Goupy was amongst those first in the field in the designing of aerial machines, and many of the clever points embodied in the latest type are the results of countless experiments, not always crowned with success. The general appearance is too well-known to need description. The ailerons fixed to the wing tips of both the main and tail planes, in appearance resembling those fitted to an early type Blériot, work in unison, the whole member acting at once in elevating, and similarly the front set combine in stabilising movements, depressing the rising wing and raising the other. This system of lateral stability has made it possible to reduce the total width of the machine to 8 metres without affecting its behaviour in windy weather or its weight-carrying ability.

The Breguet, another biplane of the same class, has made so few alterations as to render any detailed description unnecessary. In common with most two-seaters in the Salon, it is labelled a "type militaire." Alone of all the aeroplanes exhibited it has on it a

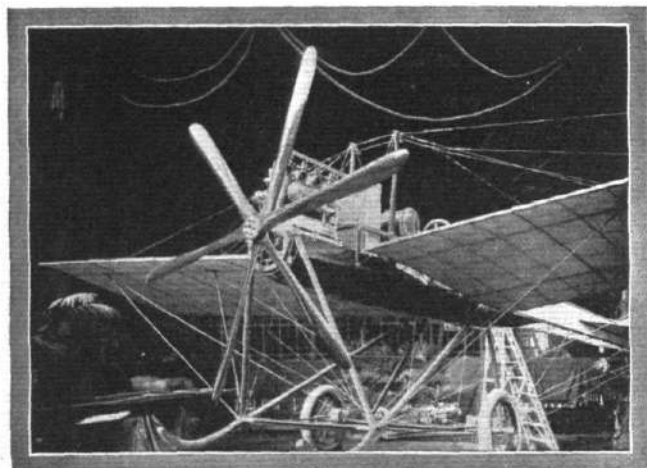


The Turcat-Mery-Rougier biplane, showing the chassis and landing skids and the four-bladed propeller, at the Paris Flight Salon.

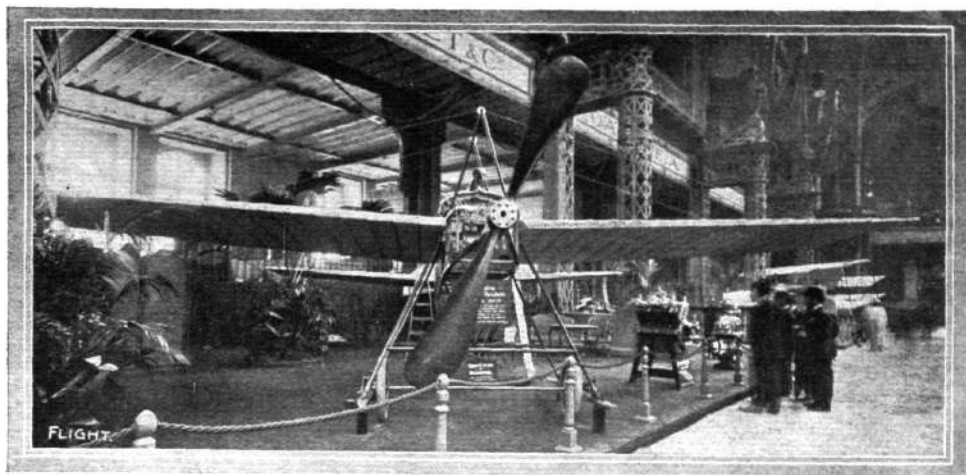
card bearing amongst other inscriptions the phrase "Le plus lourd." England has in the past frequently received abuse, occasionally unjust, but more frequently just, as to its backward place in matters of aerial navigation, but I have always understood we could claim the heaviest aeroplane actually capable of flying as our undisputed own possession, that of Mr. Cody. Certainly M. Breguet can claim without fear that his machine has carried the greatest weight yet borne by an aeroplane, five passengers in addition to the pilot. He is one of the first to fit a new type 55-h.p. R.E.P. 5-cyl. engine as a standard. The entering edges of the main planes are protected by facings of sheet aluminium. The tail employed is of cruciform non-lifting shape, similar in principle to that used by M. Santos Dumont on the "Demoiselle."

At the last flight show held in London, there was exhibited a monoplane driven by two propellers placed in front of the main planes. At the time, I understand, it was considered an original design, but without much reason, as for many months M. Liore had been experimenting with a similar type of machine. The success was, I believe, qualified, and until recently M. Liore has had but little luck. For strength and soundness of construction his machine is unrivalled. The landing chassis is well designed, and quite capable of withstanding very severe shocks. In general the monoplane is of conventional design, with the popular non-lifting tail. Ailerons, as on "Antoinette IV," are attached to the trailing edge of the main planes. The two propellers, turning in opposite directions, are driven by two chains from a motor in the usual position. A clutch controlled by a foot-pedal intervenes between the engine and the main driving sprockets. I am not certain whether the mid-wing positions of the two propellers do not, by the aerial disturbance necessarily caused, multiply to some extent the lifting power of the wings.

The Tellier Co. show a two-seater monoplane fitted with a 6-cyl. Panhard engine. It does not differ as to design from the smaller better known model. The fuselage, owing to its being of box-girder type uncovered by canvas, a method of construction not very usual in such large machines, gives the entire apparatus an abnormally long, and, I think, unbalanced appearance. In truth, however, the length and width are the same, 11 metres. One expects from a boat builder of the celebrity of Tellier a perfect finish, and one certainly finds it here, combined with great strength. The control, while of the Blériot *cloche* type, has a further rotary movement actuating the vertical rudders.



View from in front of the Deperdussin monoplane, fitted with its six-bladed propeller, and showing the chassis and skid arrangement, at the Paris Flight Salon.



The Clerget tandem three-seated monoplane, military type, fitted with 200-h.p. Clerget motor, at the Paris Flight Salon. The distance from tip to tip of front wings is 10 metres and the back wings 7 metres, the intervening distance between these being 6 metres. Total surface 37 square metres, total length 14 metres, and weight 650 kilograms. The propeller is 3 metres in diameter.

On the Hanriot stand is a small monoplane of the usual type, but the Gregoire-Gyp engine people show a large two-seater model of the same machine fitted with a normally placed motor of their own make. This type has the boat-shaped fuselage and bows of such popularity at present. The functions of gauchissement and elevation control are separated between two levers placed on either side of the pilot and both moving in natural directions. In practice the Hanriot chassis has been of the greatest success. There is little of essentially original design employed, but the constructive qualities and the detail work is greatly to be admired.

The Nieuport shows no change from that which flew so well at the last Rheims meeting. It is a little surprising to find a machine of such size made to fly excellently by means of a small 2-cylinder horizontal opposed engine of only 18-h.p., but so it is. In the earlier days a Darracq motor of this type was fitted, but now, I understand, they manufacture their own.

In France, as is well known, the Wright machines are built by the Société "Astra." On this occasion, profiting by the experience gained in the past, both in building aeroplanes and dirigibles, they have placed on show a biplane of their own, constructed under a licence from the Wright brothers as to certain details. There is no forward elevator. The fuselage projects outwards as on the new Voisin, to provide a mounting for the two seats in tandem positions. As one might expect, this also is a "type militaire," and a wheel control is placed in front of either seat so that, it was explained to me, if one pilot was shot the other could take charge at once. The tail plane is hinged and acts as an elevator. The rudder is in two parts, above and below this plane. The Wright flexing system is used without alteration. The 40-h.p. 4-cyl. vertical Chenu engine used is placed behind the main planes, and drives a single propeller. A landing chassis of two short skids mounted on two wheels is fitted.

The Sloan "bicurve," as it is called, is a biplane employing two converging main planes. It is claimed that this convergence supplies some manner of lateral stability, and greatly increases the possible strength of construction. Stabilising ailerons are only used attached to the trailing edges of the lower main planes. The elevator is part of the tail, and as usual on this type of machine the propeller is placed in front of the main planes. The Farman type of under carriage is employed.

Koechlin, one of the earliest investigators of aerial mysteries, again shows a monoplane. The design generally is conventional, but to detail much attention has been paid. The fuselage is square-shaped and covered with wood panelling. The back plane is flexed for elevation, and is in one piece. Curtiss and Demoiselle practice is followed to control the gauchissement wires—the pilot sitting in a kind of chair back which moves from side to side.

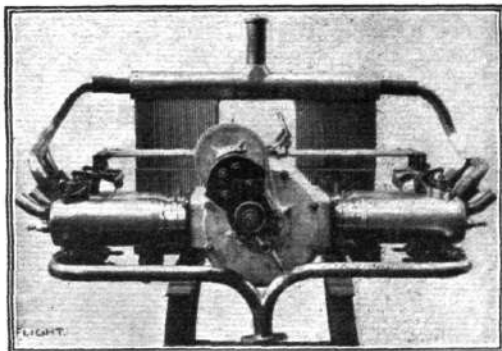
In the gallery, in solitary state, are shown the Fabre marine aeroplane and the Coanda monoplane. The first is well known from photographs and descriptions. It is mounted on three hollow floats, and is a sort of tandem monoplane. The wing construction and lattice-work beams are M. Fabre's patented design, and are simi-

larly employed in the Paulhan biplane, described last week. The Coanda, a large monoplane constructed entirely of wood, has in place of the customary propeller a turbine, of remarkably small proportions in relation to the size of the machine. A much greater tractive power is claimed, with at the same time less vibration.

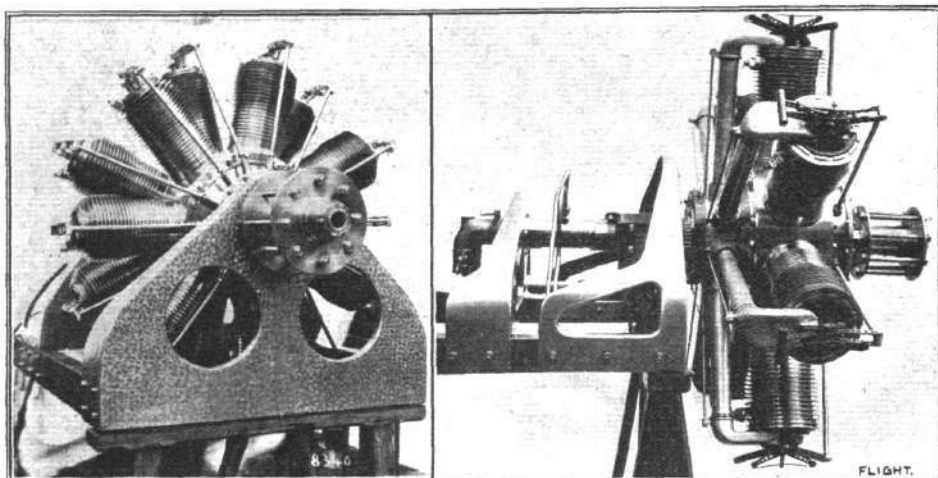
There are at the Salon a number of machines with which I have not dealt here, owing in some cases to their late arrival, and in others to my desire for further information. They will all be described fully in the detailed accounts to be published shortly in these columns.

AERIAL MOTORS AT THE PARIS SALON.

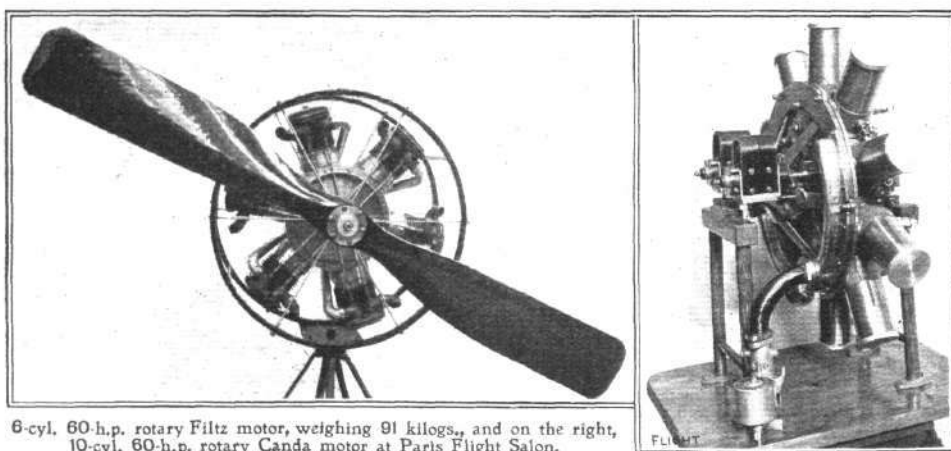
On those occasions when some science or some recent industry develops with great and unexpected rapidity, there is always a clearly-defined cause, such as some new invention, which clears away the one obstacle which up to that moment has effectually blocked the road. Because it is only during the last four years that mechanical flight has become a practical possibility, no one supposes for one moment that knowledge of that science has been confined to that period. Centuries ago the root principles of aviation had been discovered, aeroplanes had been designed, and even flights attempted, though, of course, without success. We have designs of monoplanes dating at least from the fifteenth century, containing many errors perhaps, but having all those essential features which go to



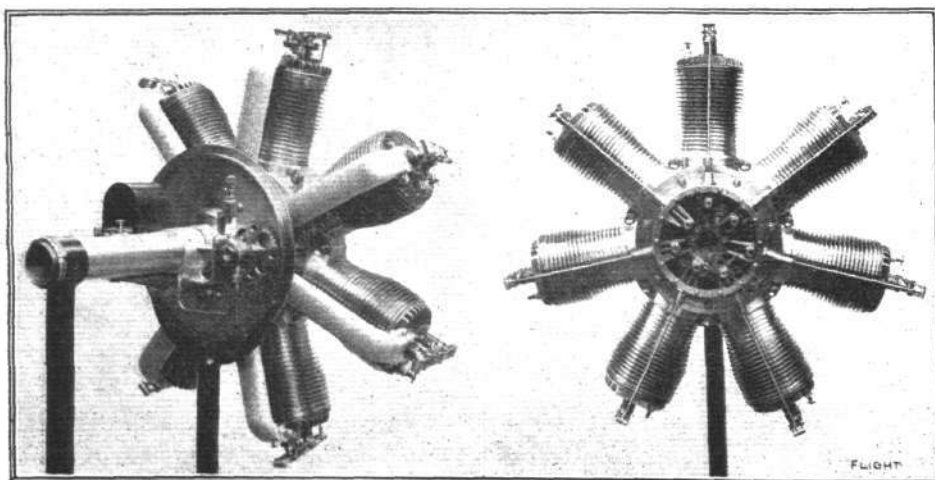
30-h.p. 4-cyl. E.N.V. motor at the Paris Flight Show. Weight 60 kilograms.



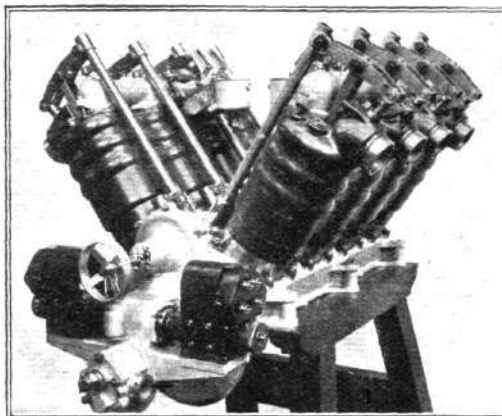
100-h.p. 14-cyl. Gnome motor, and, on the right, 7-cyl. Gnome motor at the Paris Flight Salon.



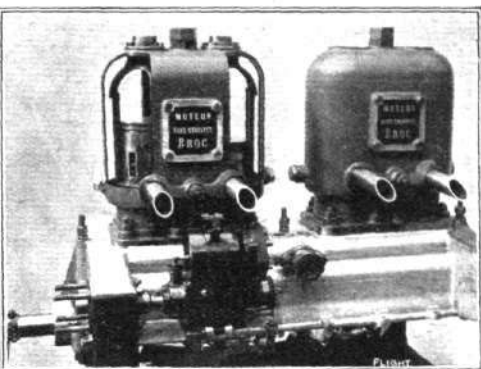
6-cyl. 60-h.p. rotary Filtz motor, weighing 91 kilogs., and on the right, 10-cyl. 60-h.p. rotary Canda motor at Paris Flight Salon.



Rossel-Peugeot rotary motor at the Paris Flight Salon.



8-cyl. 200-h.p. Clerget motor for aeroplanes at Paris Flight Salon.



Broc aviation motor, which has neither valves of the ordinary poppet type nor slide valves, at Paris Flight Salon.

make flight possible. In England, slightly backward though she may be at the moment, Henson and Stringfellow, and Sir George Cayley, had several decades back all grappled with the problem, leaving behind them a quantity of valuable theoretical material. And so until the last few years many attempts were made, and without success, the failure being in every case due to the non-existence of an efficient light and powerful engine. The production a quarter of a century ago of the internal-combustion engine, and the vast improvements made in its design during recent years, have at last made it possible to produce the successful flying machine. In the few years during which actual flights have been made, we have evolved a series of more or less conventional types of aeroplanes. Previous theory and recent practice has helped that evolution. In engine power rests the key to success, and, therefore, it goes without saying that by far the most interesting feature of the Salon are the engines displayed. Curiously to-day it is the engine far more than the aeroplane that stands in need of great improvement. New conditions have provided new problems. Engines must be light and powerful, and yet be able to stand the strain of running at full load for many hours at a stretch. They must at the same time withstand vibration and a continual alteration of position, unheard of under land conditions.

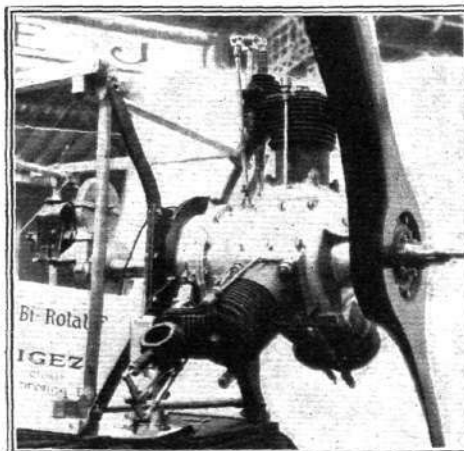
The two principal difficulties at the moment are the provision of an effective cooling apparatus, and of a perfect lubricating system. The deadening of vibration and the perfection of carburation both come a little after these.

The conventional vertical type common in motor car practice is

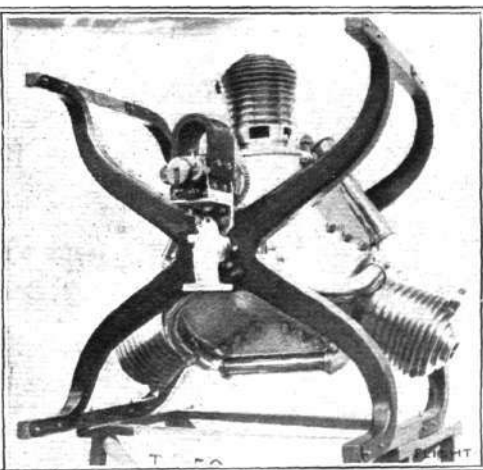
still slightly in the majority—one maker, Gobron-Brillie, having returned to it. All these motors are water cooled, though the types of water jackets alter greatly, some being of cast iron, as the Chenu and the Broc. Most, however, are of copper, either electrolytically deposited or riveted on. In most details they follow car practice, one exception being that of Weisz with fixed pistons over which the cylinders move. One valveless engine appears—the Broc, a photograph of which is seen above.

No less than four makers construct rotary motors, induced to do so no doubt by the exceptional success of the Gnome during the past year. Such motors need the greatest care, both in design and in building. The successful conveying of the petrol vapour to the cylinder heads without leakage and consequent weakening of the mixture is one of the chief difficulties of this type, and is overcome in various different ways. The new Gnome has mechanically-operated inlet-valves in place of the former system, and seven induction pipes are added behind the cylinders. The new Rossel-Peugeot motor, like the original Gnome, has seven cylinders. The number of cylinders varies considerably in the engines shown, ranging from fourteen on the 100-h.p. Gnome and ten on the Canda to three on the Ligez.

Amongst engines of V type, one new engine appears, the 200-h.p. 8-cyl. Clerget, and that, too, the most powerful motor yet built, intended for aeroplanes. The opposed cylinder system seems to be of some popularity, no less than three new types appearing for the first time. E.N.V. belie their name by producing a four-cylinder opposed engine of 30-h.p.



35-h.p. 3-cyl. rotary Ligez motor at the Paris Flight Salon. Weight 70 kilogs.



3-cyl. rotary Laviator motor at the Paris Flight Salon.

THE AERONAUTICAL CLASSICS NO. 4.

THE fourth of those admirable little volumes published by the Aeronautical Society of Great Britain under the title of the Aeronautical Classics has for its subject Francesco Lana. This early student of aeronautics wrote his treatise in Italian in 1670, and made his famous suggestion of exhausting the air from globes made of thin copper as a means of constructing a balloon for the navigation of the air. Merely from the practical point of view, and regarded in the light of modern experience, Lana's suggestion may sound a little absurd, but he deserves tremendous credit for it all the same, because in those days even such questions as the density of the atmosphere and the general principles of buoyancy were very little understood. Lana brought a remarkably clear and well balanced mathematical mind to bear on the subject, and his reasoning was quite accurate in theory. Even the practical objection that his copper globes might be crushed Lana also appreciated, but he argued, what is perfectly true, that a sphere is extremely strong to withstand external pressure.

Although so entirely logical in the science of his subject, Lana allowed his foresight of the future of the art to be coloured by his religious views, since he gave it as his opinion that although the navigation of the air was undoubtedly possible in principle, yet nevertheless God would surely never allow such a machine to be

successful "since it would create many disturbances in the civil and political governments of mankind." Well, there is at least this to be said, that man is already being justly chastised, according to Lana's view, for having dared to unveil the secret, for we certainly have had some political disturbances over aviation and are quite likely to have more.

These little books that the Aeronautical Society are publishing are really quite among the most interesting works that can possibly find their way into the bookshelves of the student of flight, and we hope that readers of this journal are supporting the very worthy enterprise that has placed such books within the reach of all. It is, after all, no more than their due that the writings of such pioneers as Cayley, Wenham, Walker, and Lana should at least be read by modern students of aviation, and there is scarcely any excuse for omitting to do so now that the Aeronautical Society have published these classics at the popular price of 1s. per volume. The present book on Lana must have been quite a troublesome and possibly a very costly production, for it is the first time that Lana's writings have been published in English, and the compilation has consequently involved a first hand translation from the two original editions in Italian and Latin. As usual, the author's treatise is introduced by a well written and appreciative biographical note.

Farman Patents.

SEVERAL correspondents having written to us for information re the Farman French patents, with respect to which Mr. Farman intends to institute legal proceedings against all infringements, we have obtained the following particulars from our French representative. English patents have been applied for in all cases:—

- Landing chassis, No. 23,134, October 18th, 1909.
- Double elevator, No. 411,421, January 8th, 1910.
- Special curvature of wings, No. 21,630, October 1st, 1910.
- Special construction, No. 21,653, October 3rd, 1910.

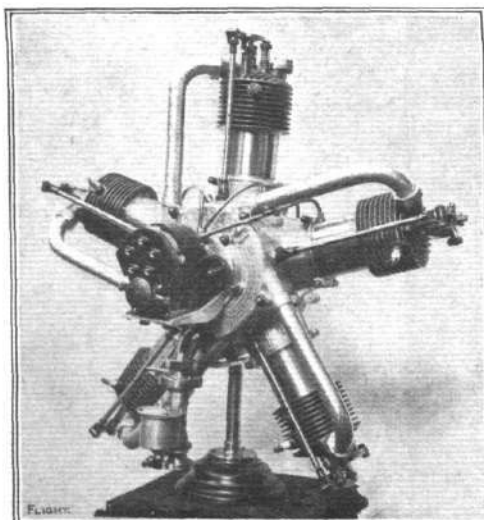
Dealing with the "Spoils at Burton.

AT a meeting of the Aviation Committee last week, held at the Town Hall, Burton, the balance-sheet of the recent aviation meeting was read, showing a profit of a little over £263. The gross receipts amounted to £2,279 15s. 7d., while the expenditure was £2,016 7s. 11½d. It was decided to utilise the balance in the purchase of a gold chain of office, which will be worn by future Mayoresses of the borough, and in consideration of the services rendered by the Mayor and Mayoress and Mr. O. W. Arnold it was also resolved that some suitable souvenirs should be presented

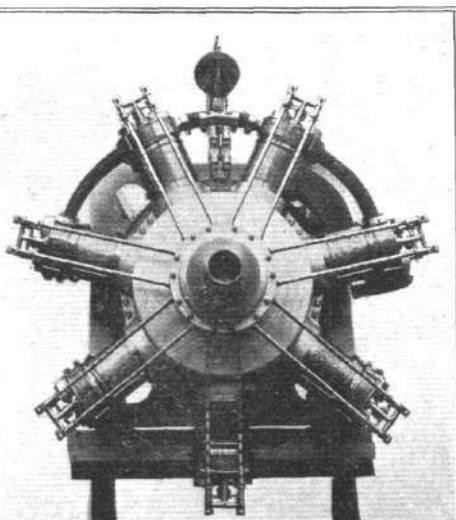
to them. But what we do not quite understand is, where do the promoters of the meeting, "Aviation Courses, Ltd.," come in, and what are these rumours, which come from Paris, to the effect that some of the machines of the aviators who took part in the exhibition are in the keeping of the British railway companies by way of security for unpaid freight?

"Daily Mail" £1,000 Cross-Country Prize.

AT last it has been possible to obtain from the Aero Club of France the certified record of M. Paulhan's flights for the *Daily Mail* Cross-country Prize. These total to 1,290.9 kilometres, equivalent to 801 miles 1,025 yards. He thus secures the prize by being nearly 100 miles in advance of Mr. Claude Grahame-White, whose record totalled to 703½ miles. The delay which has arisen in connection with the issue of the final awards has been solely on the side of M. Paulhan and the Aero Club of France, as the duly certified figures of Mr. Grahame-White were passed by the Royal Aero Club of the United Kingdom within about ten days of the closing of the competition, and although several appointments to exchange totals were definitely made by the French Club, and duly kept by the British representatives, postponement was each time on behalf of M. Paulhan.



5-cyl. 40-50 h.p. radial Anzani motor at Paris Flight Salen.



7-cyl. 90 h.p. Canton Unné motor at Paris Flight Salen.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Conference of the Federation Aeronautique Internationale.
The Conference of the Federation Aeronautique Internationale is now taking place in Paris and is being attended by delegates from the Club. Several important questions are being discussed, notably the standard test for aviators' certificates. A *résumé* of the Conference will appear in these columns shortly.

The British Empire Michelin Cup.

The attention of intending competitors is drawn to the following rules which govern the above cup for the year 1910:—

The Michelin Tyre Co. has presented to the Royal Aero Club of the United Kingdom, for competition by British aviators, a trophy of the total value of £500.

Annually, for five years, a replica of this trophy, together with a sum of £500 in cash, will be given to the successful competitor. This trophy will be competed for under the following conditions, which shall apply for this year only:—

Conditions.—1. The holder of the cup for 1910 will be the competitor who, on December 31st, 1910, shall have accomplished the greatest distance on any heavier-than-air machine without touching the ground.

2. The minimum distance to be covered in order to qualify for this prize shall be 38 miles round two or more mark posts for the necessary number of circuits.

3. Entries must be made in writing to the Secretary of the Royal Aero Club, 166, Piccadilly, London, W. At least two clear days' notice must be given by a competitor before making his attempt.

4. The entrance fee of 10s. and a further sum of £1 must accompany every notification of an attempt. Competitors, however, may give notice that they will compete from day to day and in such cases must pay a deposit of £10 to cover the necessary fees for attempts on ten consecutive days, which will be returned (less expenses incurred) in respect of those days on which no attempt is made. Every competitor must be a member of some recognised body dealing with aerial matters in the Empire, and shall, if called upon, satisfy the officials of the Royal Aero Club of his ability to fly at least 500 yards, before making any attempt under these rules.

5. All attempts must be made between the hours of sunrise and sunset, in the presence of the official or officials appointed by the Committee of the Royal Aero Club.

6. The recognised flying grounds of the Royal Aero Club are at the Isle of Sheppey, but the Committee will be willing to entertain any other ground subject to the competitor paying the necessary expenses incurred.

7. The start for the records will be reckoned from the crossing over the starting line in actual flight.

8. Competitors must be British subjects from any part of the Empire, manipulating a British-made machine. All the principal parts of a competing machine must be British made. All decisions applying to this rule shall be given by the Committee of the Royal Aero Club. This shall not be held to apply to raw material, but all finished or manufactured parts of such machine must comply with the above condition.

9. The decision of the Committee of the Royal Aero Club on all matters connected with this competition to be final and without appeal.

Baron de Forest £4,000 Prize.

Under the Rules of the International Aeronautical Federation.

Intending competitors for the above prize are again reminded that it is necessary to give one month's formal notice of entry. The rules governing the prize are as under:—

Baron de Forest has offered through the Royal Aero Club of the United Kingdom a prize of £4,000, to be competed for under the following conditions:—

1. The winner to be the aviator who, from a point fixed upon by himself, and approved by the Royal Aero Club, flies the longest distance from England to the Continent, the distance to be measured from the starting point to the point of descent.

2. No part of the machine shall touch land or water during the flight.

3. The competition to be open from January 1st, 1910, until December 31st, 1910.

4. The flight must be accomplished by means of a machine of the type designated "heavier-than-air."

5. The complete machine, i.e., the motor and all its parts, the planes, propellers, and all other parts thereof, must have been

entirely constructed within the confines of the British Empire, but this provision shall not be held to apply to raw material.

6. The entrant, who must be the person operating the machine, must be a British subject, and domiciled in Great Britain or the Colonies or dependencies thereof for a period of at least two years prior to January 1st, 1910.

7. The flight must be commenced in the presence of official observers appointed by the Royal Aero Club.

8. Formal notice of entry must be sent to the Secretary, Royal Aero Club, 166, Piccadilly, W., not less than one month before the proposed flight, and the entrant must comply with all the regulations as to notices, observations, and other details issued from time to time by the Royal Aero Club.

9. In every case, notification of the first attempt to be made, under these conditions, must reach the Royal Aero Club, 166, Piccadilly, W., not less than forty-eight hours prior to such attempt, and in the case of all subsequent attempts, not less than twenty-four hours' notification must be given.

10. The entrant must supply satisfactory evidence of previous flights before making any attempt under these conditions.

11. The competitor must supply satisfactory evidence of the exact point of descent, signed by two witnesses, whose signatures must be attested.

12. In accordance with the rules of the International Aeronautical Federation, the entrant must be a member of, or obtain a permit from, the Royal Aero Club.

13. Should any questions arise at any time after the date of entry as to whether a competitor has properly fulfilled the above conditions, or should any other question arise in relation to them, the decision of the Committee of the Royal Aero Club shall be final and without appeal.

14. Each competitor agrees to waive all claim for injury either to himself or his apparatus, and agrees to assume all liabilities for damage to third parties or their property, and to indemnify the Royal Aero Club against any such claims.

The British Empire Michelin Cup and

Baron de Forest £4,000 Prize.

In addition to the rules published above, the following Special Regulations must also be observed:—

Special Regulations.

a. Competitors must have their machines ready for examination as soon as possible after sending in their entries. In the event of any alteration being made after the examination such alteration must be at once notified to the Secretary.

b. Competitors must, before starting, produce a certificate from the maker certifying that both machine and motor are of British manufacture in accordance with the rules.

c. The complete machine must be examined before the start and the competitor must give a written undertaking that such machine complies with the regulations.

d. Competitors will be required to pay the out-of-pocket expenses of officials in connection with the verification of the machine and the observing of the start. A deposit of £10 must be paid prior to the verification of the machine, and any balance after payment of the expenses will be refunded the competitor.

Rolls Memorial Fund.

Members who have not yet sent in their contributions to the above Fund are requested to do so as early as possible. By limiting individual subscriptions to the sum of 10s. the Committee hope they will receive the support of all members.

It has been decided that the Memorial shall take the form of a bas-relief plaque, and that any surplus over and above the cost of the Memorial shall be devoted to the establishment of an **Aeronautical Library at the Royal Aero Club**, to be called the **"Rolls Memorial Library."**

Contributions of books to the **"Rolls Memorial Library"** will also be greatly appreciated.

A list of subscriptions received up to October 19th was published in the last issue, and the following have since contributed up to October 26th, 1910:—

Lt. J. R. Boothby, H. W. Bunbury, Col. J. W. Cowley, Gilbert Dennison, William Graham, P. E. B. Oldfield, Arthur W. Tate.

HAROLD E. PERRIN,

166, Piccadilly.

Secretary.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.)

Aero Models Association (CAXTON HOUSE, WESTMINSTER).

THE next paper and discussion will be held at Caxton House, on Tuesday, November 1st, at 8 o'clock, when Mr. W. H. Sayers will read a paper entitled "Experimental Model Making."

Mr. Geo. W. Pepys-Goodchild, member, of 30, Farringdon Road, London, E.C., has about 100 model Chauvière propellers, 1 ft. in diameter, available for experimental purposes, which he would be happy to present to members upon application.

A Model Club for Farnham, Surrey.

AT a public meeting held in Messrs. Ransom's Rooms, Boro', Farnham, on the 21st inst, it was unanimously decided to form an aero club for Farnham and neighbourhood. Mr. Robertson was elected President, Mr. A. R. Pantlin, Treasurer, Mr. E. G. Eggar, Recorder, while the following were elected on the committee: Messrs. A. A. Rayson, W. A. Bonette, L. J. Mitchell, G. F. Wright, A. G. Rand, A. J. Wilkinson, A. T. Simmonds, W. B. White, with F. A. Rayson, 45 Boro', Farnham, as Hon. Sec., who would be pleased to hear from all interested. Col. Capper has written his hearty approval, and already several ladies and gentlemen have offered prizes and donations. Also it is hoped to establish a workshop and store for the use of members. The first flying meeting has been fixed for to-day, Saturday.

Kite and Model Aeroplane Assoc. (27, VICTORY RD., WIMBLEDON)

THIS Association will open its winter session on Monday, November 7th, with a lecture, "The Model Aeroplane in Theory and Practice," illustrated by drawings and experiments, by Mr. V. E. Johnson, M.A., which should be of great help to model builders.

On November 28th, Mr. A. P. Thurston will lecture on "The Stability of Model Aeroplanes and Gliders."

These meetings will be held at 53, Victoria Street, Westminster, by kind permission of The Aeronautical Society of Great Britain, and it is hoped that a large number of members will attend and help to forward the interests of the Association by bringing along friends, for whom tickets can be obtained from the hon. secretary. It is proposed that this Association shall hold a competition for the best storm kites and method of communicating

between "ship and shore," and the secretary will be pleased to hear from anyone interested. It is hoped to get the Board of Trade to witness the experiments.

Manchester Aero Club (22, BOOTH STREET).

THE Manchester Aero Club held their first annual general meeting at the Midland Hotel, on Tuesday last. The attendance was not as large as expected, owing undoubtedly to the fact that the opening of the Ice Skating Rink clashed with the date of the meeting.

In the unavoidable absence of the President, Sir Wm. Bailey, the Chairman of Committee (Mr. Cedric Lee) was voted in the chair.

From the balance sheet and the report it is evident that the club has been run successfully, as the club starts its new financial year with a substantial balance to its credit.

The Committee did not feel justified in launching out in the first year of the existence of the club into undertakings which might have involved financial risks and losses, but he assured the assembly that they are quite ready and prepared to undertake anything opportunity may bring within their province.

After giving a full account of the work carried out during the past year, the chairman appealed to the members for further support and further encouragement. As in every other undertaking, funds are wanted if great things are to be achieved, and the chairman expressed the hope that a large number of people who have not taken an interest in this new branch of sport and science will enlist as members.

The club has been particularly fortunate in securing the Lord Mayor, (Councillor Behrens) as President for the coming year, and Sir Wm. Bailey, the late President who is always ready to support and encourage new movements, has consented to be deputy-president by the special wish of the Lord Mayor.

The members of the Committee and a number of Vice-Presidents were re-elected, and a cordial vote of thanks was passed to Mr. Stevenson, the late joint Honorary Secretary, for his whole-hearted work for the club.

The present number of members of the club is 268, to which have to be added a number of honorary members. At the present moment the Manchester Aero Club is the largest provincial club in the United Kingdom.



Wynmalen and his passenger Dufour at Issy immediately after their return from the successful Brussels flight last week. Note the bouquets with which they have been presented, and the "mascot" immediately above their heads.

FROM THE BRITISH FLYING GROUNDS.

Brooklands Aerodrome.

IN the early morning calm on Tuesday, the 18th inst., the Spencer-Stirling machine was out for trials. Mr. Neale was also flying "Neale VII," the necessary repairs being completed, but the rest of the day proved too windy for any work. Wednesday showed a slight improvement in the weather, and a lull in the afternoon brought out Pecquet on the Humber-Sommer biplane, which has been fitted with a 50-h.p. Gnome, in place of the 45-h.p. Humber, and now flies quite satisfactorily.

Thursday afternoon, Pecquet on the Humber biplane and M. Blondeau on the Farman, made long passenger trips, while Mr. Low on the Bristol biplane with Gregoire motor was out for half an hour in a wind varying from 5 to 15 m.p.h. Complete semi-circles were obtained, starting before the wind and ending into the wind and *vice versa*. Mr. Neale, on "Neale VII," made short flights, he, however, having a good deal of trouble with his engine.

On Friday morning Mr. Gresswell, a pupil of Grahame-White's, came to grief on a Blériot, making a bad landing. The fastening of the steel tape which braces the chassis broke, allowing it to get into the path of the propeller. Towards midday, in spite of a wind blowing about 15 miles an hour, M. Maurice Ducrocq, a pupil of M. Blondeau, qualified for his pilot's certificate. Mr. Harold Perrin, secretary to the Royal Aero Club, being present.

Saturday turned out a really calm day, and out of the 40 machines housed at Brooklands 11 took advantage of the opportunity.

In the morning the Bristol-Gregoire was out taking Captain and Mrs. Wood as passengers in straight-line flights, piloted by Mr. Low, whilst Mr. Neale on "Neale VII," and Mr. Davies on the Hanriot, were flying in the early afternoon, the last mentioned being out for the first time since the cracked cylinder had been replaced.

Later in the afternoon Pecquet was flying well, and also carrying passengers, Mr. Ballin Hinde being amongst those who ventured. M. Blondeau also made several passenger-carrying trips.

The new Bristol-Gnome was taken out for the first time. Edmond made a trial flight at from 30 to 40 feet, and, finding the regulation perfect, took Lieut. Maitland and Mr. Low for passenger flights.

While most of these machines were still in evidence, two newcomers made their bow to the public, one, Mr. Sopwith's new Howard Wright monoplane with an E.N.V. engine. Both literally and figuratively it was not only the aviator's, but also the machine's, maiden trip. After a few runs he guided the machine into the air in good style, but after 200 to 300 yds. it rose suddenly to a height of 40 feet, and for a moment looked like falling backwards, so steep was the angle. Fortunately he righted it, but in landing came down sideways, smashing the propeller and chassis, and damaging one wing. The other newcomer was the Collier-Lang monoplane, which only made a very short trial run. This machine is in many ways original, and a somewhat strange-looking craft. The pilot's seat is placed in front of the planes, while the 9-h.p. Jap is behind the pilot, driving a direct-coupled Lang propeller. The monoplane tail is supported by outriggers, similar to those used on most biplanes, and the chassis is a combination of wheels and skids, something like a Sommer.

Mr. Watkins on the Howard Wright biplane was showing good progress, several times executing sharp turns. Since Saturday there has been very little to record. Mr. Roe was out on his machine on Tuesday afternoon. It is now fitted with a pigeon tail in place of his biplane tail, and engined by an 8-cyl. Jap. Also during the afternoon Lieut. Maitland was put up for practice on the Bristol-Gregoire, and made half a dozen good straight-line flights.

New Forest Aviation School.

THE weather has been very unsettled all over this part of the country for the past fortnight, and opportunities for practice have consequently been limited to a few odd hours. On Saturday last, however, a satisfactory morning's work was got through by Barrington Kennett, who did some rolling and hopping in the early morning and then in the forenoon. After Wilson had shown himself much improved as a "roller," the army representative started off for a flight. Full of confidence, and benefiting by his last experience (when he tried to turn in the air at too small a height, and finished up with a pretty complete smash), he quickly rose to an altitude of about 50 ft., and circling gradually round covered a distance of more than a mile ere landing in the most approved style near the sheds, and just at the spot from which he had started.

Mr. Kempton Cannon commences his course at Beaulieu on Monday, and another pupil is expected later in the week. Housing accommodation is now becoming a serious question, and with the advent of more pupils it seems likely that a spacious bungalow will prove a necessity, so that everyone may be sure of finding shelter and be able to join the "aviators' mess."

It is highly probable that, on his return from America, McArdie will busy himself preparing an all-British machine, to be ready in time for him to join issue with others contesting the Baron de Forest prize for the longest flight from England into France before the end of this year.

Hendon Aerodrome.

DURING the past week the Aeronautical Syndicate's "Valkyrie" has been much in evidence at Hendon. The school machine has been out every day, excellent progress being made by Messrs. Benson and Hirst. On Saturday afternoon there was quite a crowd present, and the Syndicate's pilot made some excellent flights, circulating the aerodrome with remarkable precision and steadiness, and scoring particularly with his *vol planés*. We understand that more than one aviator has registered his application with the Aero Club to compete with a "Valkyrie" for the De Forest Cross Channel Prize, which looks distinctly promising for this distinctive "All-British" machine. "Blinkers" have now been fitted forward and under the front plane, and the rudders have been carried further aft. So satisfied are the Syndicate with the success already obtained that the standardisation of this model is now complete, and any changes that may take place in the future will be in minor details only.

We shall shortly give full particulars of the new three-seater "Valkyrie," which is now undergoing its trials. The following brief notes concerning it are in the meantime of interest:—

Bare weight, fitted with 60-65-h.p. Green engine, 740 lbs., or only 12 lbs. to the horse power. Surface, 320 sq. ft., or 2'31 lbs. to the square foot, which is certainly remarkable for a monoplane. Safety skids, 26 ft. long, set 9 ft. apart, which would appear to be a landing arrangement of extraordinary efficiency. The amount of rudder surface would appear to be excessive, but the designer of the "Valkyrie" sets great store on having a large margin of control.

Several short flights were also made by Prier on the Anzani engined Blériot on Saturday afternoon, most of them very low, but once or twice he ventured to a good height and planed down. On Monday Benson had some good practice on the "Valkyrie."



"Flight" Copyright.

Mr. Graham Gilmour, on his "Big Bat," flying at Brooklands with a passenger at dusk.

BRITISH NOTES OF THE WEEK.

The British Government Moving.

APART from the probability of the British Government having permanent control of the Clement-Bayard airship in the near future, it would appear from an announcement from a semi-official source that the Military authorities are taking practical steps with regard to the acquisition of aeroplanes. It is stated that a Henry Farman biplane of the military type has been purchased, and also one of the new Louis Paulhan biplanes, similar to that illustrated in our columns last week. The acceptance of the latter is conditional on the carrying out of satisfactory official trials.

Mr. Cody Flies Again.

THREE fine flights were made by Mr. S. F. Cody, on his new all-British flyer over Laffan's Plain, Aldershot, on Tuesday last. Each flight was over a distance of about 3 miles, and in one of them Mr. Cody was accompanied by a passenger, Mr. Albert E. Newton, of the Vacuum Oil Co. A stiff breeze was blowing, and this gave Mr. Cody an opportunity of demonstrating the fine controllability of his machine, and on one occasion he flew round in a circle of about 150 yards diameter. Mr. Newton, interviewed upon his experience, says that although he has been at most of the aviation meetings held in Great Britain, he has not previously seen anything quite so good in this respect.

Models for South Kensington.

A UNIQUE model has just been completed by Mr. T. W. K. Clarke, to the order of H.M. Board of Education, for the Science Museum at South Kensington. It is a 1/4th-scale model of the biplane with which Wilbur Wright made his first flight in Europe, in August, 1908. The model is complete in every detail, and the construction can be seen very clearly, as half the surfaces of the planes and the rudder have been left uncovered. Even the short length of chain going round the pulleys to warp the wings is accurately produced to scale.

A Canard from Aldershot.

A STARTLING announcement appeared in some of the morning papers of Thursday last week to the effect that the authorities of the army balloon factory at Aldershot were preparing for the arrival under its own power of a new airship, other than the Clement or Lebaudy, from France. Later in the day this was slightly modified, and it appeared that a zealous reporter had mixed up the preparations made at Aldershot for the reception of the Clement-Bayard airship with the announcement that a new envelope for the "Gamma" had been purchased in France, and was expected to arrive at any minute at Aldershot. It appears that the envelope of the "Gamma" has been found to be leaky, and has therefore been condemned as unfit for further service.

Town Planning and Aeroplane Stations.

ONE of the speakers at the closing meeting of the Town Planning Conference held at the Guildhall, waxing enthusiastic on the use of armoured concrete in constructing dwellings, pointed out how easy it would be to arrange roof gardens and terraces, and said

that they could later on be used as landing-stages for aeroplanes. When flying machines had been further developed, he said, aviators would be able to fly from one terrace to another, starting and landing as they pleased. He concluded by saying that in the cities of the future would be erected magnificent towers to call the flying giants from all points of the horizon, and possibly ere long the great capitals would erect higher and higher their lofty beacons to attack the stormy clouds themselves.

Testing Motors Creates a Nuisance.

THE Patrick Alexander Prize was mentioned in the Law Courts last week when an injunction was asked for to prevent the continuation of an alleged nuisance at Bushey Park, caused, it was said, by the testing of the motors competing for the Alexander Prize. For the defendants, the Government Laboratory, it was stated that the tests were of a special kind, and the major portion of them were over and only minor tests were to be made, during which great care would be taken to avoid giving cause for complaint. Under these circumstances Mr. Justice Eve said he would make no order but simply adjourn the matter for one week.

Encouragement by the L.C.C.

WISHING to hold a model aeroplane competition upon Wormwood Scrubs, the Paddington and District Aero Club wrote to the London County Council for permission. The reply was perhaps what might have been expected in view of the attitude taken by the London County Council in similar circumstances in the past. It was simply to the effect that the Council "regrets it does not see its way to allow a model aeroplane flying competition at Wormwood Scrubs or any other open space under the Council's control." It would therefore appear that the L.C.C. has quite made up its official mind that flying is not for the good of the community, and hence it will have none of it. The local council are much more broadminded, and they have readily allowed the use of the Paddington Recreation Ground, and the competition will be duly held there this afternoon (Saturday).

The Gnome Motor in Great Britain.

IT is interesting to note that the entire British rights for the Gnome motor are now in the hands of the British and Colonial Aeroplane Co., Ltd., Bristol, to whom all communications should be addressed.

An Aeroplane Factory in Surrey.

IT is announced that a factory for the purpose of constructing aeroplanes is to be erected shortly on a portion of the ground at Wintersells Farm, Byfleet.

Aeroplane Sold by Auction for £35.

IT may be remembered that some time ago a syndicate was formed in West Hartlepool to build an aeroplane from the designs of Capt. Donovan. A sum of about £200 was, it now appears, spent on the construction of the machine, but it failed to give satisfaction, and last week the machine and fittings were sold by auction, realising the sum of £35.

GORDON-BENNETT BALLOON RACE.

ALTHOUGH at the time of writing one of the American balloons is still missing, the Aero Club of St. Louis has provisionally awarded the Gordon-Bennett Balloon Trophy to the German representative "Dusseldorf II," which covered 1,240 miles.

Ten balloons left St. Louis on the 18th inst., representing four countries, as follows:—United States, "America II" (A. R. Hawley), "St. Louis" (E. Honeywell), and "Million Population" (Louis Von Phul); Germany, "Dusseldorf II" (Hans Gericke), "Germania" (Capt. Abercron), "Harburg" (Lieut. Vogt); France, "Ile de France" (A. Leblanc), "Condor" (Jacques Faure); Switzerland, "Helvetia" (Col. Schaeck), and "Azura" (Capt. Messner). The first to land was the "Million Population," which was brought down on the shores of Lake Michigan at Racine. The second balloon to come down was also an American, the "St. Louis," landing at Hillmann, in Michigan, after covering just on 550 miles, while the third to land was the French "Condor," which came down at Two River, in Minnesota, after crossing Lake Michigan, the distance being 415 miles. The second French balloon came down at Pogamasing, in Ontario, 711 miles from the start. The occupants of the German balloon "Harburg" had an exciting time, for owing to the previous extravagant use of ballast the balloon rapidly fell from a height of 18,000 ft. into Lake Nipissing, Ontario. This point was about 750 miles from the start. Lieutenant Vogt and his companion, Herr Assmann, managed to swim ashore, where they were taken care of by the

Indians, and subsequently taken to the hospital at Powassan. After this nothing was heard for some considerable time of the remaining competitors, but it subsequently transpired that the "Azura" landed in Ontario, 32 miles north-east of Biscotasing. The second Swiss representative, "Helvetia," landed near Villa Maria, having covered over 800 miles, and the "Germania" came down at Cococash, 179 miles north of Quebec. This left the "America II" and "Dusseldorf II" still to be accounted for, and the latter was heard from on Sunday last as having descended at Kiskisink, in Quebec, on Wednesday, the distance from St. Louis being 1,240 miles. All these last-mentioned competitors landed a good distance away from civilisation, and consequently the passengers had some exciting adventures, having to make their way through forests, and swim across lakes, &c. With the "America II" still unheard from on Wednesday afternoon, the following is the summarised result of the race:—

1. Dusseldorf II (Germany)	1,240 miles.
2. Germania (Germany)	1,100 "
3. Helvetia (Switzerland)	810 "
4. Azura (Switzerland)	770 "
5. Harburg (Germany)	755 "
6. Ile de France (France)	711 "
7. St. Louis IV (America)	546 "
8. Condor (France)	415 "
9. Million Population (America)	310 "

FOREIGN AVIATION NEWS.

The A.C.F. Grand Prix.

HAVING given full consideration to the question of Wynmalen's attempt to win the Grand Prize for a flight from Paris to Brussels and back, the Automobile Club of France have decided that, as he did not comply with the rules by seeing that the A.C.F. official timekeeper was actually present at the start from Issy, they are unable to credit him with a time of starting. In view, however, that he made the journey successfully it has also been decided that he shall be credited with the maximum time of $\frac{1}{4}$ sec. under 36 hours, and if no one better than time before the closing of the competition he will be awarded the prize. In view of this broad-minded decision, the suggestion that Wynmalen should appeal to the Federation Aéronautique Internationale would appear to be gratuitously foolish, especially bearing in mind that Wynmalen himself was to blame for the omission, and that technically, under the rules, he is not entitled to the prize at all, while finally the matter is hardly one which comes within the province of the F.A.I.

The Paulhan Biplane.

SUPPLEMENTARY to the description of the Paulhan machine in our last issue, we are now able to give some dimensions of the machine as supplied to us by M. Paulhan himself. The span of the main plane is 12.2 metres, while the length of the machine is 8.5 metres, and the bearing surfaces total to 30 square metres. The diameter of the propeller is 2.7 metres, and the weight of the machine 400 kilograms. The price complete is given as 30,000 francs (£1,200).

A French Inspector-General for Aeronautics.

A SIGNIFICANT move by the French military authorities is the appointment of an Inspector-General of Aeronautics which has just been sanctioned by a decree signed by the President. The duties of the officer will be to follow closely the progress of aeronautics and to study its application in general, especially in regard to military requirements. He will exercise his authority over all aeronautic troops, schools and depôts of military aeronautics, as well as all troops who are affected by this branch of the army.

Dubonnet Makes a Long Trip.

HAVING got his new Tellier monoplane, fitted with a 6-cylinder Panhard, thoroughly tuned up, Dubonnet on the 18th inst. made a long flight over the country round about the Tellier School at Etampes. While he was flying the rain came on and the wind freshened considerably, but in spite of these disadvantages Dubonnet kept on until he had covered a distance of about 50 kilom.

Henry Farman Still Experimenting.

DURING the past week or so, Mr. Henry Farman has been conducting at his Bouy flying ground a series of experiments with a new machine, the special characteristic of which is an improved type of elevator.

Cross-Country Flying by Lieut. Byasson.

FOLLOWING up a successful flight from Buc to Vincennes on his Maurice Farman biplane, Naval Lieut. Byasson, on the 18th inst., continued his journey to Mourmelon, where he received an enthusiastic reception from his comrades, while two days later he successfully flew back again to Vincennes in a couple of hours. Staying there for the night he returned on his machine to Buc on the following evening, the last-mentioned journey occupying 23 mins.

Another naval lieutenant, named Delage, has also been making good progress. On the morning of the 22nd inst. he left Rambouillet and landed safely 1 hr. 25 mins. later in the Juvisy aerodrome, planing down from a height of 300 metres. After replenishing his fuel tanks, &c., he rose again and flew over to the military parade ground at Vincennes.

The Morane Brothers Better.

THOSE who have followed the career of Leon Morane will be glad to hear that he is now pronounced to be out of danger, and well on the way to complete recovery from the results of his recent accident. The subsequent careful diagnosis by the doctors reveals the fact that Leon was more seriously injured than his brother Robert, and the former still remains at the Brevannes hospital. It is hoped, however, that he will soon be sufficiently convalescent to be removed to his home.

Flying by the Light of the Moon.

TAKING advantage of a beautiful moonlight night, Mr. Maurice Farman on the 19th inst. had his biplane brought out and indulged

in a jaunt over the country round his aerodrome at Buc. He passed over Hunier, Guyancourt, and Voisins-les-Brettonneux, and afterwards landed without difficulty on his flying ground. This little trip demonstrated the possibility of using an aeroplane at night under favourable conditions.

Fatal Accident to Capt. Madiot.

ALTHOUGH he had spent some time during the last few months experimenting with various types of aeroplanes, Capt. Madiot, who met with a fatal accident on Sunday afternoon last at Douai, was chiefly famed for his success in designing man-lifting kites for military purposes. When the accident occurred he was using for the first time alone a Breguet biplane at the La Brayelle flying ground. M. Breguet had first made a satisfactory trial himself, and then had taken Weymann as a passenger. In a third trip both Weymann and Capt. Madiot accompanied M. Breguet, and in all these tests the machine behaved quite satisfactorily. Capt. Madiot then decided to make a solo flight, and rose steadily to a height of 100 metres.

Leaving the aerodrome he flew about three miles over the country, but on returning above the aerodrome it was noticed that the machine was flying very unevenly, and suddenly it dived to the ground. Capt. Madiot was wearing a safety helmet, but he apparently lost this during the sudden descent, and when he was extricated from the wrecked machine it was obvious that he had been killed instantaneously through a fractured skull. The cause of the accident is unknown, as a subsequent examination of the machine showed that all the wires and stays were intact, and it can only be conjectured that the aviator must have made some mistake in the steering of his machine.

Distance Flying at Rheims.

SOME lengthy flights were seen at the Hanriot school at Rheims on Saturday afternoon. Lafargue opened the proceedings with a trip of 38 mins., but later he eclipsed this by flying for 1 hr. 10 mins., passing over Betheny. Prince Eristoff was flying on his monoplane for just on 2 hours, and only came down through lack of petrol.

Doings at Issy.

THERE has been a deal of activity at Issy during the past week. On Saturday last, Andre Noel was out on his Anzani-engined monoplane "Moineau," which has a great reputation for speed. Busson was flying at an altitude of 150 metres on his



Lindpaintner, the winner of the German Minister of War's prize at the Berlin Aviation Week this month.

"Deperdussin" monoplane, while Aman was making straight flights on his Etich. Colliex was trying a new two-seated Voisin, while Grandseigne was on the S.A.F.A. (Caudron). In addition to these, there were a number of fledglings at the Bonnet-Labranche school trying their Blériot wings.

The Aero Club of France and its Title.

HAVING come to the conclusion that the term "Aero Club" implies the Aero Club of France, that body has decided to take steps to protect its title, and has announced that it will proceed against any body incorporating the term in its title. In a subsequent interview with the secretary it is explained that it is not proposed to interfere with the provincial clubs, but only to prevent the use of the title by any other body in the district of Paris.

Direction Signs for Flyers.

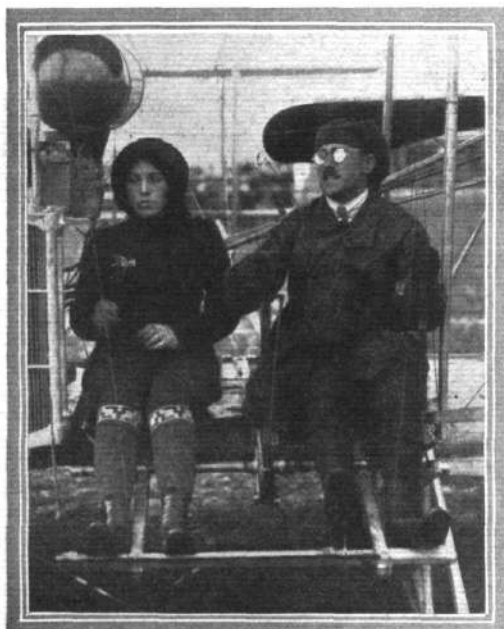
AT last a start is about to be made with the marking of routes for flyers in France, and arrangements are being completed for laying down white figures, 6 ft. high, at every village and prominent landmark. The figures will be in two sets, the first indicating the distance north or south of Paris, and the second the distance east or west of the French capital. Before deciding upon this size, experiments were carried out at the Eiffel Tower, figures being laid down on the ground and viewed from the top gallery, which is about 1,000 ft. high. It is suggested that the first route to be marked should be that from Paris to Chalons.

A New Aviatress.

AFTER a very long period of instruction at Mourmelon Mdlle. Marvingt, on her Antoinette monoplane, on Saturday last succeeded in passing the necessary tests in order to obtain her pilot's certificate. She is the third woman to obtain a pilot's certificate from the Aero Club of France, the others being Madame de la Roche (Voisin) and Madame Niel (Koechlin).

Mishap with a New German Biplane.

WHILE testing their new biplane at the Hall flying ground near Berlin, the two Brothers Becker met with a serious accident. The machine had been flying very satisfactorily for a period of 12 mins. when it suddenly dived to the ground from a height of 10 metres. W. Becker sustained a broken arm and a fractured skull, besides being severely bruised, while his brother also had to be taken to the hospital, although he was not so badly injured.



Engineer Thelen, with Frau Direktor Wörner as passenger, on his Wright biplane during the Berlin Aviation Week this month.

Tabuteau Flies to Etampes.

HAVING entered for the Michelin Cup, Tabuteau flew over to Etampes from Buc, on his Maurice Farman machine, on Tuesday last, in order to decide as to the suitability of the ground for making a record flight. He completed the trip in 50 mins.

Thelen Flies over Berlin.

USING his German-built Wright biplane, Thelen on the 19th inst., in the course of a demonstration before the military authorities, started off from Johannisthal flying ground, and made a successful trip to the military parade ground at Teglitz. The distance between the two points is about 40 kiloms., and this was covered in one minute over the hour.

Another German Aviator Killed.

THE opening of the flying meeting at Magdeburg was marred by a fatal accident. The weather conditions were not at all satisfactory from the point of view of aviation, and on Tuesday it was feared that no flying would be possible. Lieut. Mente, however, determined to try his Wright machine, and was planning down after a satisfactory flight, when he appears to have lost control through starting the motor again. The machine fell to the ground, and the Lieutenant, who only obtained his pilot's certificate on September 16th, was instantly killed.

A Long Flight by Euler.

USING the monoplane which he has designed and constructed himself but fitted with a Gnome motor, Herr Auguste Euler succeeded on Monday evening in beating the German duration record. Rising from Darmstadt Military Parade Ground, and carrying a load of benzine weighing 330 lbs., he continued to fly round and round in the gathering darkness until he had been up for 3 hrs. 6 mins.

The German War Minister Offers a Prize.

IN spite of the restrictions which are imposed by the German authorities on cross-country flying, a prize has just been offered by the German War Minister for a flight from Aix-la-Chapelle to Berlin. The prize is of the value of £5,000, and the competition will be held during next year, only German aviators being eligible to take part. The route will cross the towns of Cologne, Dusseldorf, Essen, Dortmund, Hamm, Munster, Osnabruck, Hanover, Brunswick, and Magdeburg, the finish being at the Johannisthal Flying Grounds on the outskirts of Berlin. The distance is about 389 miles.

R.E.P. Flies for Two Hours.

ON Tuesday, Ernest Laurens, who has proved himself an adept in the handling of the R.E.P. monoplane, succeeded in making the best flight so far made with that type of machine. Rising from the Buc aerodrome, he flew over Villauray, Toussus-le-Noble, Voisins-le-Bretonneux, and Guyancourt, for 2 hrs. 7 mins., during which time a distance of about 200 kiloms. was covered. He then had to come down owing to his petrol supply giving out. During the time Laurens was flying, Pierre Marie, a second R.E.P. pilot, flew over to Etampes from Buc.

Airships over St. Petersburg.

INHABITANTS of the Russian capital on the morning of the 5th, had the unusual experience of witnessing two military dirigibles cruising overhead for about an hour. They were the "Krechet" and "Golub," the latter being on its way to the aerodrome, where the flying meeting was in progress, and where it cruised overhead for some time. As it was leaving to return to its shed Efimoff, on his Farman biplane, carried out one or two spectacular evolutions, making circles round the dirigible and also passing over and under it.

National Prizes in Russia.

AMONG the proposals submitted to the Duma by the Russian Minister of War is one providing for a credit of 25,000 roubles (about £2,500) to be utilised as prizes in aeroplane competitions, to be organised during next year.

With the Czech Aviators.

A GOOD flight was made by Sablaty at Prague on Sunday week, when, accompanied by Mdlle. Krieger on his Wright biplane, he reached an altitude of about 300 metres. There are three other aviators at Prague, Jean Kaspar de Pandilice and Barthel, both of whom pilot Blériot monoplanes, and Eugene Cibak, who drives a Sommer monoplane. Besides these, Sablaty has several pupils, while a locally built monoplane, combining the features of the Blériot and Santos Dumont types, is being experimented with by Jacobar Potuck and an engineer named Blondek.

CONTINENTAL FLIGHT MEETINGS.

Johannisthal Flying Week.

A PROVISIONAL list of awards has been issued in connection with the recent flying meeting at Johannisthal. Lindpaintner secured first place and 25,000 marks in the competition for the War Minister's Grand Prize, his time in the air being 11h. 37m. 53s., while Jeannin was second, taking 15,000 marks, with 8h. 7m. 20s. For the other prizes offered by the War Minister Brunnhuber took the first, of 5,000 marks, with 3 hrs. 58 mins., and Wiencziers the second, 3,000 marks, with 2 hrs. 12 mins. The latter's height record of 1,560 metres also won the prize of 4,000 marks and the special silver cup, while he also secured the Bleichroder Prize for speed. The starting prize went to Thelen, whose best get away was 29'74 metres, he also winning the passenger prize with 1h. 50m. 27s., Brunnhuber being second with 1h. 45m. 56s.

The Brussels Meeting.

ALTHOUGH the second meeting to be held this year at Brussels did not officially open until Friday of last week, the previous day saw one or two very good trial flights by competitors who were tuning up their machines. Petrowski was the first to get up, he covering three laps on his Sommer machine at a height of 50 metres. Christiaens on his Farman also completed one circuit, but on a second attempt came down a little too suddenly and damaged the rear planes. Darioli also made one lap on his Blériot. On Friday of last week the weather was not all that it might have been, and in consequence the flying was of very short duration. Laffont on his Antoinette, De Ridder on his Voisin, Madame Niel on a Koechlin, Petrowski on his Sommer, Christiaens on the Farman, and Darioli on a Blériot were all in the air at some time or another, the last-mentioned meeting with a mishap. He had covered a distance of 500 metres when his machine capsized suddenly. Fortunately the aviator escaped with only slight injuries, and the monoplane, except for the smashing of its propeller, was also very little damaged. During the afternoon the dirigible "Ville de Bruxelles" left its hangar at Etterbeek and, carrying eight persons, cruised for a little under 20 mins. over the flying ground. Saturday last saw a good deal of very satisfactory flying, the outstanding feature of the day being a flight of 1 hr. 6 mins. by Laffont. Apart from this, the two next best performances were those of De Ridder of 20 mins. and Petrowski of 10 mins., but there were a number of other short flights. For a second time the big dirigible paid a visit to the flying ground, and cruised overhead for 1 hr. 13 mins. There was very little of note to record on Sunday, but on Monday Petrowski was the first in the air, and after a trial flight of 2 mins. was off again



The Crown Prince of Germany congratulating Wiencziers on his altitude flight of 1,560 metres at Johannisthal on the 16th of this month.

for an 18-min. trip, while De Ridder was flying for over half an hour. Laffont also made a notable performance by remaining up for 32 mins.

AIRSHIP AND BALLOON NEWS.

Arrival of the "Morning Post" National Fund Airship.

JUST as we go to press comes the news that the Lebaudy dirigible, built for the *Morning Post* National Fund, has successfully made the passage across to England. Leaving the shed at Moissons at 10.15 on Wednesday morning, the airship was steered direct to St. Valery on the French coast. Across the Channel a course was set by a British destroyer until the English coast came in sight, where a captive balloon, which has puzzled Brighton and the neighbourhood for some days, served to direct the airship on its way. The cross-Channel trip occupied a few minutes over two hours, Brighton being passed at ten past two. Continuing the voyage in splendid form, Aldershot was reached at half-past three, and half an hour later the airship was docked, after it had circled round the camp once or twice. While the airship was being pulled into the shed, the envelope came in contact with a girder which tore the fabric, and the envelope collapsed. No one was hurt, and the framework was undamaged.

A Preliminary Trial in France.

ON Thursday of last week the Lebaudy airship, built for the *Morning Post* National Fund, made its re-appearance after undergoing the slight modifications suggested from its original trial flights. Altogether it was in the air for 70 minutes, and during that time went through numberless manoeuvres and evolutions without a hitch.

A Long Trip by "Parseval VI."

A LENGTHY journey was successfully carried out by "Parseval VI" recently. Leaving Munich on the 10th inst., she sailed to Plauen in Saxony, where a stop was made for the night. On the following day the airship continued her journey to Bitterfeld, where again a stop was made for the night, while during the afternoon of the 12th a four-hour trip took the airship over to Johannisthal. The

distance between Bitterfeld and Johannisthal is 75 miles, and the airship, piloted by Lieut. Stelling, carried nine persons during the last stage.

A Gross Airship Damaged.

THE delicacy with which dirigible balloons have to be handled was again strikingly illustrated the other day by a mishap with one of the Gross airships. On Saturday night orders were given for an airship of the Gross type to proceed from Tegel to Gotha after dark. Leaving Tegel soon after three o'clock in the morning the destination was reached in six and a half hours, the airship being favoured by a north-easterly wind. While the dirigible was being towed into the harbour, however, the envelope came into contact with a beam projecting from the side of the shed, and this tore a large hole in the fabric. As it was impossible to repair this on the spot, the balloon was deflated and sent back to Tegel by rail.

Two New Dirigible Pilots.

AT the last meeting of the Aero Club of France Committee, certificates as pilots of dirigible balloons were granted to M. André Cohen and Captain E. Mugnier.

Berlin to Amsterdam by Balloon.

SETTING out from Berlin with the intention of sailing to London, three passengers in the German balloon "Hildebrand" had perforce to end their journey at Amsterdam. After 16½ hours' travelling the balloon had covered about 320 of the 500 miles which separate the German and English capitals, and she was just over the entrance of the North Sea Canal, by Amsterdam, when for some reason the balloon lost buoyancy and fell into the sea. Fortunately all the occupants were rescued by a steamer, which was also able to save the balloon.

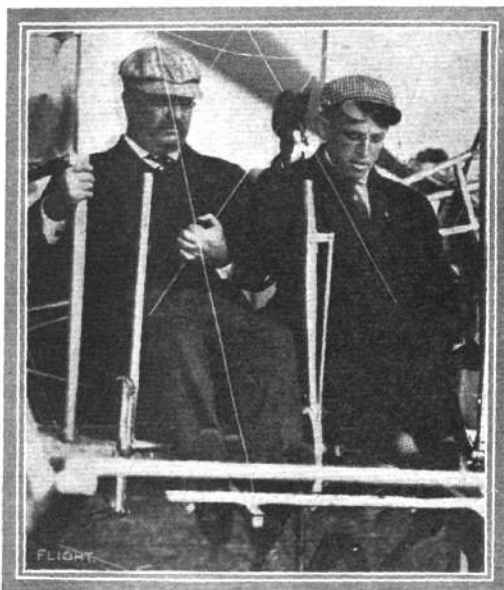
AMERICAN NOTES.

The Wright Racing Biplane.

FROM New York it is cabled that the new racing biplane evolved by the Wright Bros., and which it is hoped will keep the Gordon-Bennett Trophy in America, is extraordinarily small in comparison with its predecessors. The main planes are said to be only 21 ft. 6 ins. span, and only 3 ft. chord, while in the standard type of Wright biplane the dimensions are 39 ft. 6 ins. by 7 ft. The motor is an 8-cylinder V type of 65-h.p. The Brothers Wright have also a second racing machine, in which the planes are a little larger, being 26 ft. long and 3 ft. 4 ins. wide.

The American International Meeting.

FOR its first international aviation meeting, which opened at Belmont Park, N.Y., on Saturday last, America was not favoured with the best of flying weather, rain and fog during the morning making the opening proceedings rather dismal. Later on, however, the weather cleared, and then a good deal of flying was seen. The first to get in the air was one of the Wright pupils, P. O. Parmlee, who qualified for his pilot-aviator's certificate. Then Hoxsey, on a Wright, and Drexel, Grahame-White and Moisant, each on Blériots, started for the hourly prize. The first was won by Grahame-White, who completed 20 laps, with a weight of 50 kilograms, in 57 mins. 44½ secs., and Moisant was second with two laps less, his time being 51 mins. 11½ secs. In the second hour Grahame-White won again, with 20 laps, in 59 mins. 23½ secs., Moisant again taking second place. There were two competitions for height, the first being won by Hoxsey on the Wright machine, who went up to 670 ft., Ely on the Curtiss being second with 370 ft. In the second contest Hoxsey won with 600 ft., while Jacques de Lesseps was second with 490 ft. Moisant made a cross-country flight of 20 miles in 39 mins. 41½ secs. There was one accident, Shriever on a Dietz biplane coming to grief at a corner of the course where Moisant on the previous Wednesday had smashed up one of his Blériot machines. The biplane fell from a height of 50 ft., and was of course wrecked, but the aviator escaped with only minor injuries. During the afternoon the spectators were surprised to see Capt. Baldwin arrive on his biplane from his residence about 7 miles from the aerodrome. The meeting was continued on Monday, when much better weather prevailed. De Lesseps was the first in the air, he being quickly followed by two of the Wright pilots, Johnstone and Hoxsey, and after them Mr. Grahame-White, who had had a Farman biplane lent him, went for a trial spin. Great interest was taken in a short test, with one of the new Wright racing biplanes, which although it flew very low covered the ground at a great speed. After these Ely and McCurdy, both riding Curtiss biplanes, were next to take the air, while Latham and Aubrun were the last to bring out their machines. There were two hourly competitions, and at the end of the first Drexel was leading with 27 laps to his credit, Aubrun being second with 26, and Johnstone third with 19. At the end of the second hour Aubrun was in front, followed by Grahame-White and



Ex-President Colonel Roosevelt in the "passenger seat with Hoxsey on the Wright biplane on which Mr. Roosevelt had his flight at St. Louis on October 11th last.

Latham. All of these completed the 21 laps, and the two last-mentioned tied for second place. The speed prize was won by McCurdy, who covered the 15 miles in 19 mins. 49 secs., while the height prize fell to De Lesseps. Latham brought out his Gordon-Bennett Antoinette for a short spin, and unofficially, was said to have attained a speed of 62 miles an hour. On Tuesday the Wright racer was out for a trial spin, and this was timed unofficially to attain a speed of 70 miles an hour, piloted by Orville Wright. The first of the two hourly competitions on Tuesday was won by Latham, with a score of 20 laps, while Grahame-White won the second. Johnstone on his Wright beat the American height record, carrying it up to 7,303 ft.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in **FLIGHT**, would much facilitate ready reference by quoting the number of each such letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

THE TRAILING EDGE.

[843] I wonder whether an idea, emanating, so far as engineering or scientific experience is concerned, from an extreme outsider, is worthy of the most trifling consideration by those who are experts in the matter of aeroplane design.

We are told by Mr. Moisant that at the present time increased speed is the desire of aeroplanists, and it has occurred to me that possibly, by a slight alteration of the form of the trailing edge of



the planes of both monoplanes and biplanes, the speed efficiency of existing engines might be increased to an appreciable extent.

Possibly a rough sketch may help the explanation of my idea.

The above may be taken to represent a section through the main planes.

In its passage through the air, in the direction of the arrow, the

upper surface of the entering edge at A in the sketch, applies an upward impulse to the body of air drawn towards it by the propeller.

This results in the formation of a probable powerful vacuum above the trailing edge of the plane, towards which the partially compressed air from the under surface of the plane rushes. Why not utilise this rush of air towards the vacuum, and extract from it a forward thrust on the body of the plane by causing it to travel up an inclined rigid surface thus, and exerting the thrust in its effort to reach the vacuum?

I feel I almost ought to apologise for troubling you with an idea which is probably too crude and elementary to have escaped the attention of designers if it was worth anything.

The flexible trailing edge of the wings of birds is probably the best illustration of what I have endeavoured to convey.

Doncaster.

R. J. W.

THE CAMBERED PLANE.

[844] There is now no necessity to attempt to prove that the cambered surface is more efficient than the flat aerofoil. But what is a matter for proof is the advantage of the dipping front edge. Let us suppose for a moment that the first curve shown represents a typical dipping edge aerofoil, and the second part of the same algebraic curve taken so that the leading edge is horizontal.

When the first plane moves through the air the upper surface of the leading edge forces the air up, thus causing a vacuum over the

after part of the upper surface. This vacuum is said to be sufficiently valuable for lifting purposes to make the extra resistance involved of no account. But surely the downward pressure on the front part of the surface must very nearly negative this vacuum lift.

Now when we come to follow the path of the air round the lower surface, we must surely find a great loss of efficiency here due to the dipping edge. The inside of the arc of the dipping edge will be



vacuous, thus giving another downward pull to the plane, and the actual lifting effect does not begin until about half way back along the chord.

When, however, we come to the second plane, we find a very different state of affairs. The upper surface being practically of stream-line form offers very little resistance, while none the less there is a considerable vacuum area over the trailing half. The under surface again meets the air without shock, and gradually imparts to it an ever-increasing downward acceleration.

Which plane is the more efficient? The question seems superfluous. Unless there is some other very important reason for adopting the dipping edge, its use seems to be but a waste of power and efficiency.

E. H. F. MORRIS.

[As we have endeavoured to point out on every occasion that this matter of the dipping front edge has been under discussion, its *raison d'être* is the existence—or at any rate the supposed existence in case anyone disagrees therewith—of an upward trend in the relative wind immediately in the vicinity of the leading edge of any plane in flight. This upward trend is due to the cyclic current round the periphery of the plane, which is compounded with the relative horizontal wind. Reference to Vol. I, p. 296, will show diagrams illustrating the point in question.—ED.]

AN EARLY STUDENT OF FLIGHT.

[845] A few days ago at Mitford, in Northumberland, my host, finding I was interested in the art of flying, produced an old diary of his travels, and showed me the following entry and sketches, at the same time asking me if I could give him any explanation of the phenomena he had observed and recorded—as the entry showed, nearly 70 years ago. Although Mr. Osbaldeston-Mitford is now in his 99th year, he takes the keenest interest in the latest phase of aerial transit.

London, S.W.

C. A. B.

[Enclosure.]

From the diary of Mr. Osbaldeston-Mitford, dated Ceylon, 1846.

Seeing what has been done by mechanical science, I have no reason to doubt that the method of propelling balloons or aerial vehicles will be discovered; the principle exists in nature, but is at present latent—the discoverer will seize and apply it. Why may it not be found in the following fact?

In the month of November in Ceylon a strong north wind blows along the sea coast; at the same season clouds of white butterflies appear, flying in a continual stream for days and weeks from the south in the eye of the wind, and the harder it blows the faster they fly! I never saw this circumstance without the greatest astonishment. The locust, with its strong body and large wings, always drifts with the wind, and cannot make head against it, but here is an insect with a body too slight and small even to give a fulcrum for the wings to bear on, and with wings offering a broad surface to the breeze, an insect we should expect to see drift like a snow-flake, that this delicate creature should possess such an extraordinary faculty gives us a clue to an aerostatic principle with which we are not yet acquainted.

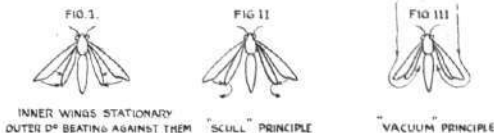
There can be no doubt that the butterfly in this case does not propel itself, but that it is driven onwards against the wind by the action of the wind itself upon the surface of the wings presented to it by the insect, but how this is done it is not easy to demonstrate.

Is the wind reflected from one pair of wings against the other with such velocity that the other wings acting upon it propel the insect? (Fig. 1); or does it work upon the principle of the scull, the wind acting upon the anterior surface of the wing? (Fig. 2); or is a vacuum formed by the pairs of wings forming an acute angle to the wind, the rush of air into which would propel the insect forwards? (Fig. 3).

On the east side of the island I have seen clouds of black and green striped butterflies flying from north to south, but with the wind.

[The above most interesting and very human document dates back to a period that is very closely associated with the beginning

of scientific thought on the subject of flight. Sir George Cayley, it will be remembered, practically founded the science of aerodynamics by his articles in *Nicholson's Journal* in 1809. It was not until forty years afterwards, however, that anyone again attempted to put



Sir George Cayley's ideas into practice, for it was in 1842 that W. S. Henson filed his patent for the aerial steam carriage, which was to be very much like the modern aeroplane. Henson in the next year joined J. Stringfellow, and together they proceeded to build models for experimental purposes. The first trial took place in 1847—that is to say, in the year after the above note was written—and this trial was unsuccessful. Henson left England in 1848, and J. Stringfellow took up the work alone, and fairly early in the same year built a model that did fly under its own power. Mr. Osbaldeston-Mitford would naturally have been totally unacquainted at the time he was in Ceylon with the experiments taking place in England, indeed, those at home paid far too little attention to the remarkable work that Stringfellow accomplished. It also, perhaps, emphasises the early period of the above note to remark that it was written twenty years before the foundation of the Aeronautical Society of Great Britain, which is itself the oldest Society in the world devoted to the study of aeronautics.

Quite apart from the question of date, however, Mr. Mitford's observations on the flight of butterflies are of exceptional interest. Insect flight is an art in nature that is very little understood even at the present day, and it is, moreover, very difficult to accurately record the various phenomena thereof owing to the smallness of many insects and to their extraordinary elusiveness when under observation. As is the case with most winds, the air currents in the place in question probably had a sufficient upward trend to give the insects adequate dynamic support for soaring. It also appears from what Mr. Mitford relates, that these little flyers are able to so adjust their wings as to obtain a forward component from the upward trend that helps them to make headway against the wind.—ED.]

UNDULATING FLIGHT.

[846] With reference to your editorial note at the foot of my recent letter on the question of the relative efficiency of flight in a straight line and a flight of an undulating character, I cannot do better to elucidate this question than enclose a cutting from the *Sporting and Dramatic* leading article which appeared in that paper on May 5th last, and to which my attention has been drawn since writing to you on the subject. The article is somewhat lengthy for your correspondence columns, but is so clear and such an excellent article on the subject of flight generally that I feel sure you will recognise the utility of its reproduction. I would add that the majority of the weaker birds fly in a series of undulations, and suggest that the figures given by various mathematicians on the power required by birds for flight may have been based upon suppositions or data which have not included any consideration of this subject.

Killarney Bay.

C. TEASDALE-BUCKELL, R.N.

[The article in question certainly purports to be an argument in favour of switch-back flight, but we cannot honestly say that it convinces us. We reproduce two paragraphs, as examples, as follows:—

"It is not necessary to discuss the relative quantity of lift and drift obtained by various angles of aeroplane to the horizontal and to the line of progress. That which is observed in practice is that a very little head wind reduces pace by half, and it goes without saying that the effect of the power of the motor is therefore always being reduced by more than half in still air. Even then the planes are setting up for themselves a wind resistance of the exact speed of their travel. Only would it be possible to drive an aeroplane for all it is worth with a wind behind it equal to its normal speed in still air. In that way it would double its speed, but it would still be meeting the same retardation by air as when driven at half the speed in still air. So that it is not possible to expect to obtain the speed of which the motor is capable so long as lift, or resistance to gravity, is only acquired by a means that resists forward progress. At present it may be truly said that pace and buoyancy are opposites in the aeroplane. That is, buoyancy is only to be acquired by a resistance to onward progress. But this buoyancy is purchased at an enormous cost.

"The greatest source of buoyancy in all other unsuspended flight

is speed; the greatest in the aeroplane is resistance to speed. Science has never discovered a way of measuring exactly the motor power that would be required to keep up a machine from London to Manchester. But as gravity acts by the square of the time, it is clear that the faster the travel the less gravity would act. But this is only the elementary principle of the question of buoyancy.

"Perhaps the best way of expressing the value of speed in buoyancy is by likening a flying machine to a rifle bullet. The '303 bullet travels over 500 yards in the first second, and in doing so falls 16 ft.; if it could put out directors, or steering planes, in front, it need not fall at all. But it does fall, and by the third second has fallen from its line of impulse 144 ft. A bullet going with half the velocity is acted upon by gravity in exactly the same way in the same time, and also falls 144 ft. in the same time and in half the distance travelled. But if, instead of allowing gravity to accelerate fall in this way, we check fall at 1 ft. downwards, and then induce a rise of 1 ft. and an alternation of switchback movements for three seconds, we have a very different amount of downward work to overcome. Gravity pulls down 1 ft. in one quarter of a second, and work against gravity for an equal rise takes exactly as long. Consequently, in order to maintain buoyancy by switchback in the air, the three seconds may be divided into six periods of half a second each, and each of these will contain a fall and a rise of one quarter second and 1 ft. only. Thus, instead of requiring 144 foot-pounds of work to meet total acceleration of gravity, all we require is 6 foot-pounds of work expended over three seconds. Now let us assume that, in sliding down the 1 ft., the machine meets with no air-resistance to a knife-edge to its forward progress. Its acquisition of speed in that slide will be more than double than that it could acquire with an ordinary aeroplane resistance. There is no reason why its motors should not re-elevate it the foot; but suppose that conservative notions to the bird's wing principle compels the contrary for a time, then double the air-resistance of the ordinary aeroplane will be required for the next half second to regain elevation." But in physics of the air, twice the speed creates four times the energy, and only half this has to be exerted for half the time to overcome twice the resistance. That is how speed may make speed in the future, not how speed makes resistance and retards itself in the present most successful aeroplanes and biplanes, which are but beginnings."

There is a point in our correspondent's letter relating to the flight of birds that is referred to in a section of "Flight Manual," as follows:—

"Leaping Flight."

"Many small birds alternate their active flight with periods during which they project through the air with closed wings; the result is a higher average velocity. Nature endows small birds with relatively large wing surfaces sufficient to sustain the added centrifugal component due to the leaping mode of flight. The largest bird performing leaping flight observed by Lanchester is the green woodpecker. Weight, 6 to 7 ozs.; and the longest leap in proportion to the active period about 3 to 1 in a species not identified."

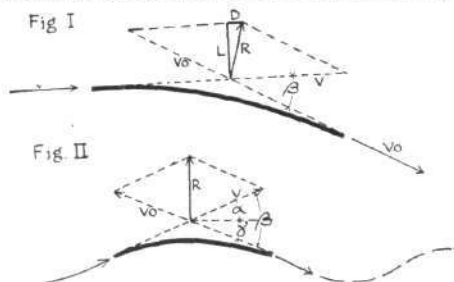
The above paragraph describes an artifice whereby the velocity of normally slow-speed flight may be temporarily increased, but this does not by any means imply that the leaping mode of flight is necessarily as economical of power as the ordinary method. If a slow-speed flying machine were constructed so that it could close its wings and extend them at the will of the pilot, possibly it, too, might be able to increase its speed; but again it does not necessarily follow that it would be an economical way of performing the feat. The exigencies of bird-life doubtless cause Nature to endow different species with different amounts of wing-surface in proportion to their weight in order that they may be properly equipped to perform other manoeuvres than those of mere straight-forward locomotion.—Ed.]

IS AERODYNAMIC RESISTANCE A MYTH?

[847] I have read with much interest your articles "Can We Fly Faster for Less Power?" and cannot but believe that the whole conception of the problem, in so far as it is based upon the horse-power formula in your first article of July 9th, is wrong.

The formula you give implies, first of all of course, that a direct expenditure of power is required for the mere sustentation of a weight, and secondly that the resultant R , Fig. 1, is the measure of this power, and that the plane actually has a vertical motion through the air of $V \frac{\tan \beta}{2}$ miles per hour. But the plane is stationary in the vertical direction, and R is only the reaction of the forces, produced by a mass of air at velocity v , being diverted by the plane into the direction v_0 , without—for the ideal case—reduction of its velocity. The vertical and horizontal components of R are the "lift" and "drift" respectively, the latter of which represents a direct expenditure of power for the purpose of sustentation.

However, is it necessary to directly expend power in order to sustain a weight in the air? Nowhere else is this necessary, and I do not believe that the aeroplane will provide the exception to this rule. I believe, and not entirely without foundation, that a properly curved plane produces a wave-motion, as shown in Fig. II;



and if we then make the inlet and outlet angles α and γ equal, the resultant R becomes vertical. The "drift" then, of course, disappears, and, if we assume the ideal case—no head-resistance or skin friction of the plane, and no internal friction of the air—we have sustentation without any power-expenditure whatever. Thus, in the real case, all the power-expenditure in an aeroplane, as in any other vehicle travelling in a horizontal path, need only be that necessary to overcome frictional resistances when once in motion.

Leeds.

E. MEDERY.

[Our correspondent takes the somewhat unusual line of argument that it ought not to be necessary to expend power on the dynamic support of a load in the air, but we would point out that the above letter is itself somewhat illogical on this point, inasmuch as, referring to the resultant, R , from which the support is derived, it states, "and R is only the reaction of the forces produced by a mass of air at velocity v , being diverted by the plane into the direction v_0 , without—for the ideal case—the reduction of its velocity." The admission that the air has mass, and that the mass thus represented has acquired a velocity that it did not formerly possess, implies that this mass underwent acceleration and, therefore, by Newton's law, called for the exercise of a force. This force, it will be observed, has nothing whatever to do with the existence of skin friction or otherwise, nor is it concerned with the nature of the medium to which it is applied. The essential consideration is that the force and its reaction are dynamically created, and thus differ fundamentally in nature from a static force such as exists for the support of a body resting on the ground or an airship floating in the air. The maintenance of a dynamic force essentially calls for the exercise of power, and inasmuch as that power does not exist in the system as a whole it must presumably be drawn from the engine. In a glider the power exists in the system as represented by gliding flight, where gravity takes the place of the motor. In soaring flight power pre-exists in the system due to the upward trend of the wind or to its turbulence.

In arguing upon somewhat abstract problems of this sort one is a little apt to overlook what constitutes the basis of our physical conception of things; for, if the state of the atmosphere and the attraction of gravity were manifested in other ways than they happen to be at the moment, all sorts of undertakings would doubtless become possible. The idea, for instance, that, since gravity exists as a force in nature, there must be an equal and opposite force of the same kind in nature also, is one that has appealed with very strong fascination to many men of advanced intellects; and who shall say but that the day may come when someone shall discover the key to the mystery? Then certainly the problem of dynamic flight would be changed. Our aeroplanes would be supported without the expenditure of engine-power, which would only be necessary, as our correspondent suggests is the case at present, to overcome skin friction. But, until that day comes, it seems to us we must rest content to pay for our dynamic support in the air, and incidentally be thankful that flight has not only come to pass, but is making such strides in our own generation.

There is, curiously enough, another aspect of the subject raised in the above letter that is dealt with in Mr. F. W. Lanchester's "Aerodynamics," and it may possibly be of particular interest to our correspondent. Mr. Lanchester discusses in paragraph 125 some theories connected with "peripteroid" motion, and among other remarks is the following: "The conception suggests that, if we had been called into existence surrounded by an atmosphere destitute of viscosity, our natural method of locomotion would have been to glide horizontally sustained on the crest of a vortex hoop, a structure which from its immutability would require to be specially

created at first, and would after death continue to pervade the world for all time like a disembodied spirit." Certainly Lanchester's is a most readable book for one devoted to such a technical subject.

It is somewhat instructive, too, to compare the case of the hydroplane and the aeroplane, especially if the hydroplane-boat that is now being so successfully developed by Sir John Thornycroft is taken as a standard. Here we have a case in which the support during horizontal motion is alternatively hydrostatic and hydrodynamic. When a boat like "Miranda IV" is skimming, the load is supported by the dynamic reaction of a thin stratum of water which is rapidly deflected downwards by a certain portion of the bottom of the boat, which forms a slightly inclined plane. Under these conditions the entire hull is out of water; in fact, we have seen daylight under the boat both fore and aft of its supporting plane. Now, it is perfectly obvious that this state of dynamic support cannot be maintained without the expenditure of power; directly the engine is throttled down below a certain value the boat ceases to skim, and is therefore hydrostatically supported during its continued horizontal motion. This hydrostatic support, or in other words the buoyancy of the boat, is independent of the development of power, but the hydrodynamic support certainly cannot exist except when the engines are at work and the boat is in motion.—ED.]

THE NEALE BIPLANE.

[848] I am sorry to trouble you again about this, but the statements of Mr. J. Neale, in his letter in *FLIGHT* of October 22nd, need replying to.

Mr. Neale's agreement with me is as follows:—

"I hereby agree to build an all-British biplane for passenger carrying, fitted with a 30-40-h.p. Green aero engine, and to do my utmost to have it ready for the Bournemouth Meeting, for the sum of £650 nett cash, this sum being approximately cost price. I agree to train you to pilot the machine, and give my services to further the success of the Syndicate for one-quarter of the machine and profits. I also agree to provide the necessary spares and repairs whilst you are learning to fly, free of charge to the Syndicate, for a period not exceeding four months."

Accordingly, two friends of mine and myself have actually paid Mr. J. Neale in advance, as he has called for them, sums of money amounting in all to £650 and upwards, each finding one-third thereof.

This is the history, so far, of "Neale VII," by which those interested in aviation can judge for themselves.
October 26th.

BERTIE RIPPIN.

MODELS.

CENTRE OF GRAVITY IN MODELS.

[849] I have built a model Henry Farman with a span of 4 ft. It balances longitudinally at the rear spar. Is this correct? if not where should it do so? It is a model of the latest type. Do you think a 12-inch Cochrane propeller and about 44 strands of $\frac{1}{16}$ -in. elastic would be sufficient to drive it?

I have taken in *FLIGHT* for a year, and take this opportunity of thanking you for the useful information which is always to be found in it.

Croydon.

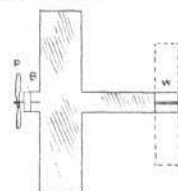
S. A. HALL.

[The only reliable test is the gliding capability of the model. The centre of gravity must coincide with the centre of lifting effect, and it all depends on the extent to which the tail acts as to the

exact position of this point. An alteration of the tail angle would destroy the flight balance, but would not affect the static balance at all.—ED.]

NOVEL PAPER GLIDER EXPERIMENTS.

[850] The following experiments, performed on a paper glider, may be of interest. The glider used was cut out of drawing paper to the shape shown, the dotted part, W, being folded in to form a weight, which may be easily adjusted by cutting. The part, B, was folded so as to take a pin carrying a simple propeller cut from paper and twisted.



I first tried it with the pin fixed so that the propeller was vertical and could not move. The glider then went evenly at about 1 in 8 to the ground. I then loosened the pin so that the propeller could revolve freely. When the glider was launched it went the same as before until the propeller got up speed by its motion, when the glider almost stopped and sank to the ground without dipping.

I repeated these experiments several times, always with the same results.

These results may appear very surprising, but there seems to be a good reason for them. When the propeller was set vertically so as to offer the greatest possible resistance to motion, this resistance had a certain fixed value; but when free to revolve, the air got more grip upon it, and thus at a high speed more work was absorbed from the momentum of the glider by the friction of the bearing than by the friction of the air on the stationary propeller.

South Norwood.

O. J. MARSTRAND.

MODEL DUNNE AEROPLANE.

[851] I have constructed a model Dunne aeroplane from the drawings of the full-size machine that appeared in the issue of June 18th, and write to ask if some of your readers could help me with suggestions as to the best method of fitting a motor and propellers, so as to convert the model into a real flyer.

Manchester.

JOHN GRANDIDGE.

BOYS' MODELS.

[852] Enclosed you will find two photos of a model biplane of my own design and construction. The main planes are 2 ft. 11 ins. in span, and the elevator and rudder are worked by two levers on the Wright principle. This is my third model, the two previous ones being monoplanes.

Hounslow.

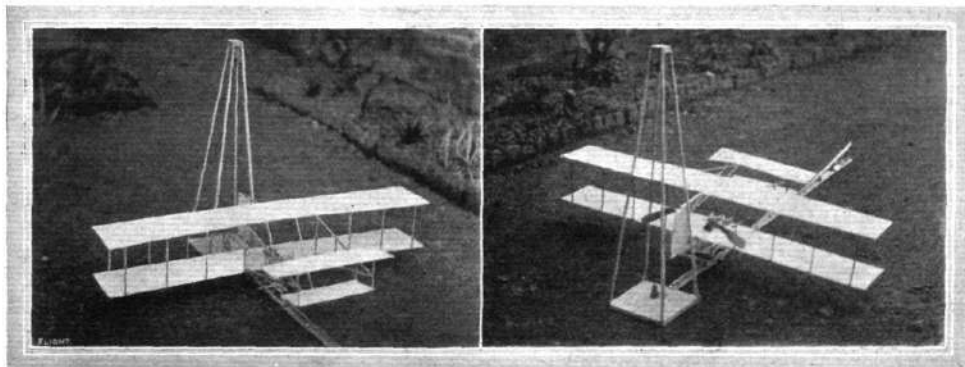
R. E. M. FERRY.

QUERIES.

[853] Leslie Waggott (Nottingham) would like to have particulars of any compressed air engine that has been used successfully on a model aeroplane.

[854] "Struts" (Cairncross) requires the name of any manufacturer who can supply sockets and swivel joints for the tail of the Demoiselle full-sized monoplane.

[855] W. Jubb (Doncaster) would like to receive general particulars and probable weights and power required for a model Antoinette measuring about 3 ft. 6 ins. in overall length.



R. E. M. Ferry's Wright model.

- [856] F. S. Whitbread (Birmingham) would be pleased if any readers could supply drawings and particulars of a hot-air engine suitable for driving a 15-in. propeller fitted to a 4 ft. 6 in. span monoplane.
- [857] "Tivertonian" (Tiverton) and also D. Barton (Upper Norwood) would like to receive particulars of J. Gaunt's cycloplane, and also to hear from any other reader of FLIGHT who has experimented in this direction.
- [858] Reginald Oates (Birmingham) would like to have details and sketches from any other reader who has had experience in applying the works of an alarm clock to the propulsion of a model aeroplane.

REPLIES.

- [859] H. Goldstein.—The angle of incidence is the angle formed by the chord of the plane and the horizon. It can be expressed either in degrees or as a slope. In the latter case the slope as a fraction represents the tangent of the angle; thus, a slope of 1 in 18 corresponds to an angle of about 3°. The chord is the straight line joining the leading edge with the trailing edge.
- [860] "Vogel."—We have never heard of raw buffalo hide being used for propellers nor are we aware of any similar structure in which this material is employed that would be analogous in its use to the propeller.
- (2) Monoplanes commonly employ larger main spars for their wings than biplanes because the method of bracing does not facilitate such light construction. In order to prevent these large spars being an obstruction it has been common practice to double surface the planes, whereby the spars are completely enclosed. Double surfacing is in any case solely employed in order to prevent the spars being an obstruction and even where single surfacing is used in some biplanes the main spars are encased in pockets.
- [861] Leslie Waggott.—Ball thrust bearings are so cheap to buy that there is no point in making them yourself.
- [862] "Enthusiast."—(1) The front edge of any plane is the entering edge whether the plane is a main plane or a tail plane.
- (2) The action of the wind on a plane with an inverted camber would be downward pressure.
- (3) It partly depends on the size of the model as to what would be the best wood to use, but in general it is policy if you have the choice of several woods to use that which has the straightest grain and is most free from knots and other blemishes.
- [863] F. W. B. Ashley.—(1) Aspect ratio is the number of times the span contains the chord. Each plane has its own aspect ratio, that is to say the aspect ratio of a biplane is the same as a monoplane of the same span and chord. It is important to bear this in mind as some people seem to imagine that the aspect ratio of an aeroplane depends on the number of planes.
- (2).—Multicylinder engines will ordinarily restart on the switch if they have not been stopped very long and of course always supposing that they have been brought to rest by switching off, with the throttle open. It is necessary to start engines by turning the propeller previous to a flight, in order to fill the cylinders with gas.

PUBLICATIONS RECEIVED.

The Care and Management of Ignition Accumulators. By Harold H. U. Cross. London: E. and F. N. Spon. Price 1s. 6d. net.

The New Electric Generating Station at the Northampton Polytechnic Institute. London: The Northampton Institute, Clerkenwell.

Annuaire de l'Aéronautique, 1910. By Paul Sencier and Ch. A. Berthand. Paris: C. Goblet and H. Marchal, 17, Rue Joubert. Price 15 frs.

The Encyclopedia of Sport. Volume I (A to Cricket). London: William Heinemann. Price, cloth, 10s. 6d.; half-bound, 12s. 6d. net; fortnightly, 1s.

Catalogue.

"Burberry for Men." Burberry's, 30-33, Haymarket, S.W.

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Henry Farman	Feb. 12	" Jones")	" 17
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Distance and Duration.—Olieslaegers (Belgium), at Rheims, on a Blériot monoplane with Gnome engine: 244'309 miles in 5h. 3m. 58s.

Speed.—J. Radley (Great Britain), at Lanark, on a Blériot monoplane with Gnome engine: 1 mile in 47½ secs. = 75'95 m.p.h.

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Aeronautical Patents Published.

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18,805.	T. COWBURN.	Aeroplanes and means for propelling.
21,059.	J. L. GARSD.	Aerial machines.
22,475.	W. J. POTTER.	Propelling mechanism for aerial navigation.
26,568.	W. W. CHRISTMAS.	Flying machines.

Applied for in 1910.

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10,575.	R. ENSAULT-PELTERIE.	Flying machines.
20,606.	L. T. G. EVANS.	Aeronautical apparatus.
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Foreign Events.

1910.	1910.
Oct. 15-Nov. 2 Paris Aero Show.	Dec. 4-18 Marseilles.
Oct. 23-Nov. 1 Liege.	

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